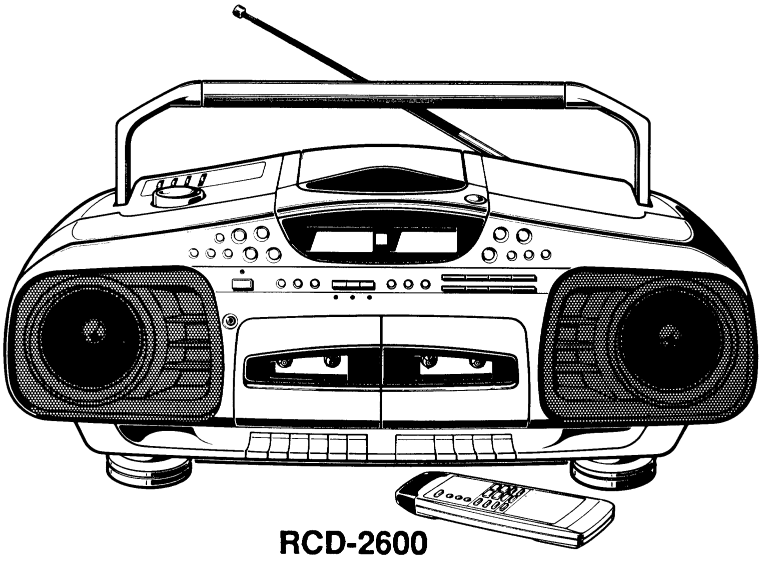
SAMSUNG
Electronics

SERVICE MANUAL
MODEL: RCD-2600

DTS RADIO CASSETTE RECORDER WITH COMPACT DISC PLAYER



RCD-2600

SPECIFICATION

RADIO

Frequency range	:	FM: 87.5 – 108MHz (87.9 ~ 107.9) AM(MW): 530 – 1720KHz (522 – 1611)KHz LW: 146 – 290KHz
I.F	:	FM: 10.7MHz
Antenna		FM: Telescopic rod antenna AM(MW)/LW: Ferrite bar antenna

TAPE

Track system	:	4 track 2 channel
Recording system	:	AC bias (DECK A)
Erasing system	:	Magnetic erasing (DECK A)
Monitor system	:	Variable monitor
Frequency response	:	Normal 50 – 8000Hz CrO_2/METAL (PB) 50-10000Hz
Tape speed	:	4.75cm/sec (Normal speed) 9.5cm/sec (High speed)
Tape drive system	:	Capstan belt driven
Tape loading system	:	Front loading
Motor system	:	DC synchronous 2 speed motor (DC 9V)

GENERAL

Frequency response	:	20-20000Hz
Speaker	:	Woofer : ø 100mm x 2 (4 Ω) SBS : ø 100mm x 1 (8 Ω)
Max output	:	4W/CH
Power source	:	AC: See label rating DC: 12V (D, UM1, HP2) DC: 6V (AA x 4) — For memory back up.
Power consumption	:	30W
Dimension	:	663(W) x 249(H) x 247(D)
Weight	:	7.5Kg (Without batteries)
Headphone jack	:	ø 3.5mm

COMPACT DISC PLAYER

Frequency range	:	20-20,000Hz
Signal to Noise ratio	:	90 dB (1KHz) with filter
Wow and flutter	:	0.001%
D/A Conversion	:	16 bit

Design and specifications are subject to change upon improvement without prior notice.

CONTENTS

- SAFETY PRECAUTION 2
- SERVICING NOTES 3
- LOCATION OF CONTROLS 4
- DISASSEMBLY INSTRUCTION 7
- LCD DISPLAY 9
- TROUBLE SHOOTING CHART 11
- ADJUSTMENT 15
- CD ADJUSTMENT 18
- IC AND TR LEAD LAY OUT 23
- BLOCK DIAGRAM 29
- SCHEMATIC DIAGRAM 31
- PCB PATTERN & MARKING DIAGRAM 34
- WIRING DIAGRAM 37
- EXPLODED VIEW 39
- DECK EXPLODED VIEW (CD & CASSETTE) 40
- CASSETTE DECK PARTS LIST 41
- CD DECK PARTS LIST 42
- PARTS LIST 43
- ABBREVIATION LIST 49
- TROUBLE SHOOTING (CD) 50
- BASIC CIRCUIT OPERATION 53

■ SAFETY PRECAUTION

1. CLASS1 LASER PRODUCT

This compact disc player is classified as a CLASS 1 laser product.

2. LASER WARNING LABEL

The label shown below may be affixed or not according to country.

(UL)

This Product Compiles with DHHS Rules 21CFR, Sub chapter J.At date of Manufacture.

(CSA)

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE.

CERTIFIE EN VERTU DU CODE CANADIAN DE LELETRICITE SEULEMENT

(EU)

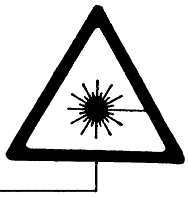
CLASS 1
LASER PRODUCT

Location : Enclosure back.

(SCAN)

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

(EU)



UL : Manufactured for U.S.A. Market.
CSA : Manufactured for Canadian Market.
EU : Manufactured for European Market
SCAN : Manufactured for Scandinavian Market.

Location : on the disc clamper or inner side of CD door or nearby CD chassis.

3. LASER BEAM WARNING

ADVERSEL — USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING — OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRALEN ÄR FARLIG.

VARITUS — LAITE SISÄLTÄA LASERDIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTA SILMILLE VAARALLISTA LASERSATEILYÄ.

CAUTION — INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

4. LASER DIODE SPECIFICATION (OPTICAL PICK-UP)

- Material: AlGaAs
- Wavelength: 760-800mm
- Emission duration: Continuous
- Laser Output: 0.2mW
- * This output is the value measured at distance 1.6mm from the objective lens surface on the optical pick-up block.
- Classification: CLASS 1

5. WARNING FOR SERVICING

WARNING: When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30cm from the surface of the objective lens on the optical pick-up block.

VARNING: När underhållningsarbeten utförs, närma dig försiktigt och se inte på laserutstrålningen på för näre häll. Ifall det är nödvändigt att betrygga laserstrålens utströmning. Var säker att kontrollera dettä från ett avstånd av mer än 30cm (11.81 inch.) från den objektiva linsens yta på den optiska utsåndningspunkten.

ADVARSEL: När repareringsarbejdet udfoeres, naerm dig forsigtigt og se ikke på laserudstrålingen på for naer hånd. It ilfaeldet at det er noedvaendigt at bestemme laserstrålens udstråling. Vaer sikker på kontrollere dette fra en afstand af mere end 30cm (11.81 inch.) fra den objektive linses overflade på den optiske udsendningspunkt.

VAROITUS: Silmiä on varottava viemästä liian läbeiie Laser-poistokanavaa huoiion aikana. Jos on välttämätöntä varmistaa Laser-Säteen päästö, pysyttels sitä tarkasteltaessa vähintään 30cm etäiyydellä optisen lukon objecktiivilinssin pinnasta.

SERVICING NOTES

1. Disconnect power supply cord before separating cabinet for servicing as you may experience an electric shock.
2. Avoid repairing under direct sunshine and heat which may cause cabinet, transistor and IC to be transformed or misoperate.
3. Use a soft cotton swab moistened with warm water or neutral cleaner when parts of a unit need to be cleaned.
4. Be sure to use identical and standardized replacement parts, especially for critical parts marked by ⚠ in the circuit diagram and parts list.
5. Avoid repairing the set near a TV or any other magnetic forces.
6. Disconnect the plug from wall socket during electric storm to reduce the risk of damage.
7. Be careful of electrostatic damage when replacing the control IC such as μ-COM, LSI and pick-up.

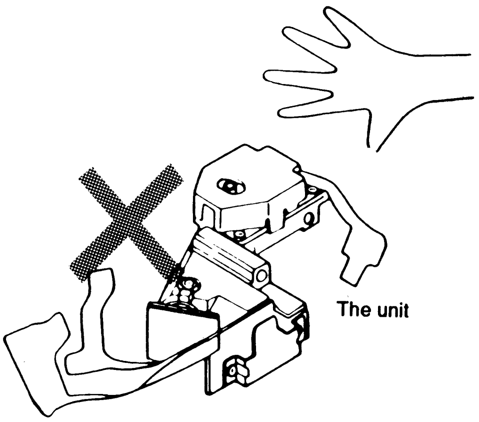
HANDLING THE OPTICAL PICK-UP

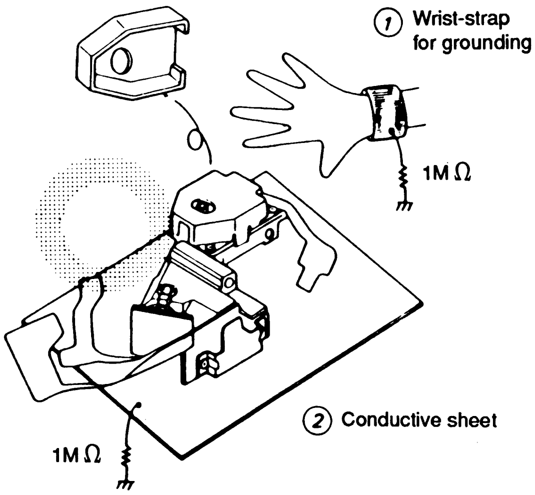
- The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

1. Place a conductive sheet on the workbench. (The black sheet used as wrapping for repair parts.)
2. Place the set on the conductive sheet so that the chassis is grounded to the sheet.
3. Place your hands on the conductive sheet. (This gives them the same ground as the sheet.)
4. Remove the optical pick up block.
5. Perform work on top of the conductive sheet.
   Be careful not to let your clothes or any other static sources touch the unit.

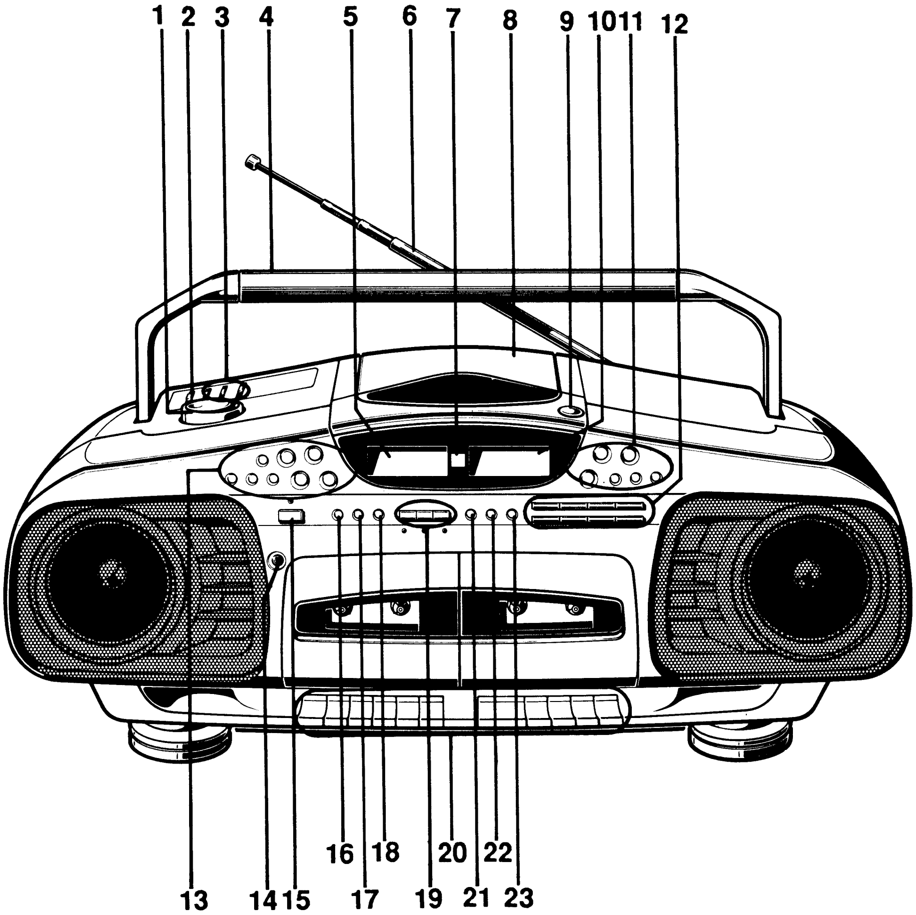
* Be sure to put on a wrist-strap grounded to the sheet.
* Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.



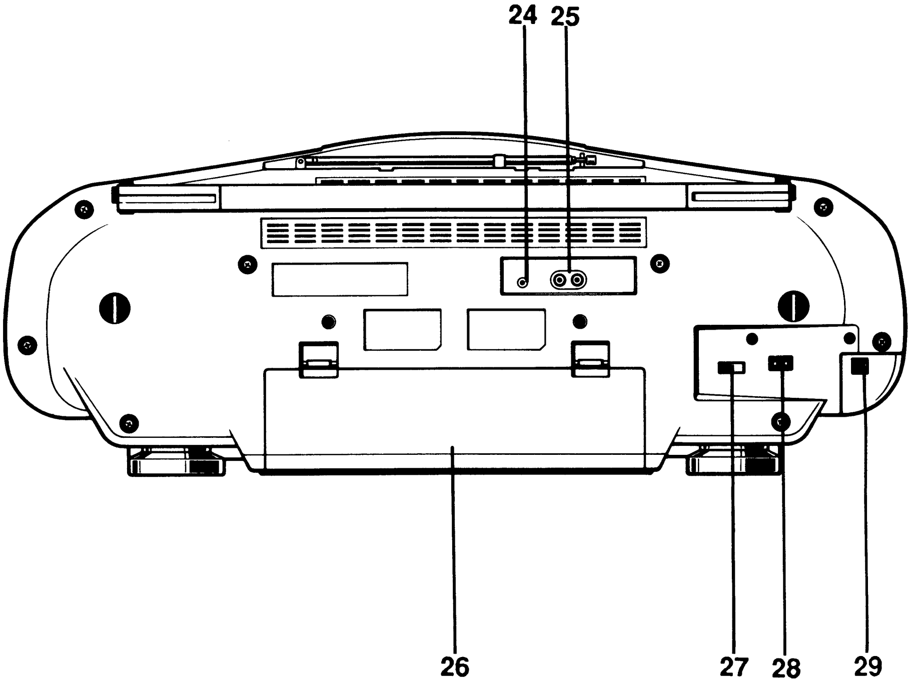


LOCATION OF CONTROLS

FRONT panel


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

Rear panel


24
25
26
27
28
29

<FRONT Panel>

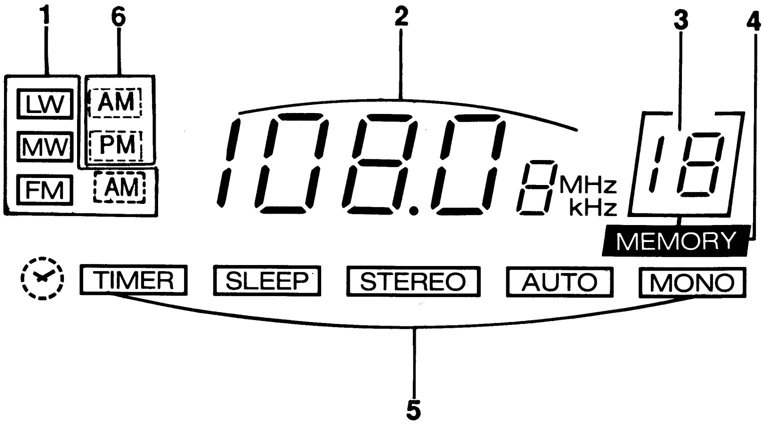
1. [VOLUME] Control
2. [Super Bass Sound] Control
3. [GRAPHIC EQUALIZER] Control
4. HANDLE
5. [CD MULTI FUNCTION] Display
6. ROD ANTENNA
7. REMOTE SENSOR
8. CD Door
9. CD DOOR PUSH OPEN Button
10. [DTS/CLOCK] Display
11. DTS/CLOCK operation Buttons
    [TUNING UP DOWN/HOUR MIN] Button
    [BAND] Button
    [FM MODE] Button
    [PROG.] Button (Memory/clock Adjustment)
    [AUTO] Button
12. [PRESET STATIONS] Button
13. CD Operation Buttons
    [+10] Button
    [NEXT/FF] Button
    [BACK/FB] Button
    [PROGRAM] Button
    [DISPLAY] Button
    [MODE] Button
    [STOP/CLEAR] Button
    [PLAY/PAUSE] Button
14. [PHONES] Jack
15. [POWER] Button
16. [WIDE] Button
17. [DUBBING] Button
18. [TAPE SELECTOR/BEAT-CUT] Button
19. FUNCTION Buttons
    [CD, TAPE, TUNER]
20. DECK Operation Buttons
    [RECORD] Button (A DECK)
    [PLAY] Button
    [REW] Button
    [F.FWD] Button
    [STOP/EJECT] Button
    [PAUSE] Button
21. [CLOCK] Button
22. [TIMER ON] Button
23. [SLEEP] Button

<Rear Panel>

24. [MIC MIXING] Jacks
25. [CD-OUT] Jacks
26. Battery Compartment
27. VOLTAGE SELECTOR Switch (Option)
28. [AC POWER] Socket
29. BATTERY ON/OFF Switch

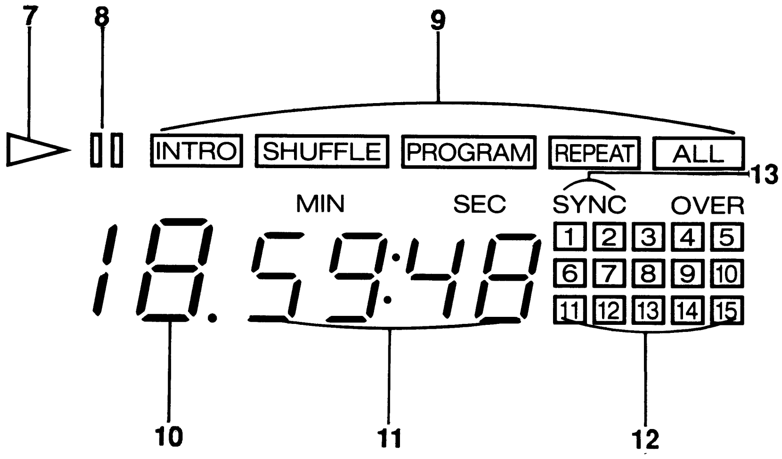
<TUNEP/CLOCK> Display

1. [FM/MW(AM)/LW] Indicator
2. [FREQUENCY/CLOCK] Indicator
3. [MEMORY/NUMBER] Indicator
4. [MEMORY] Indicator
5. [TIMER/SLEEP/STEREO/AUTO/MONO] Indicator
6. [AM/PM] Indicator (2 BAND)


1
6
2
3
4
LW
MW
FM
AM
PM
AM
1080
MHz
kHz
18
MEMORY
TIMER
SLEEP
STEREO
AUTO
MONO
5

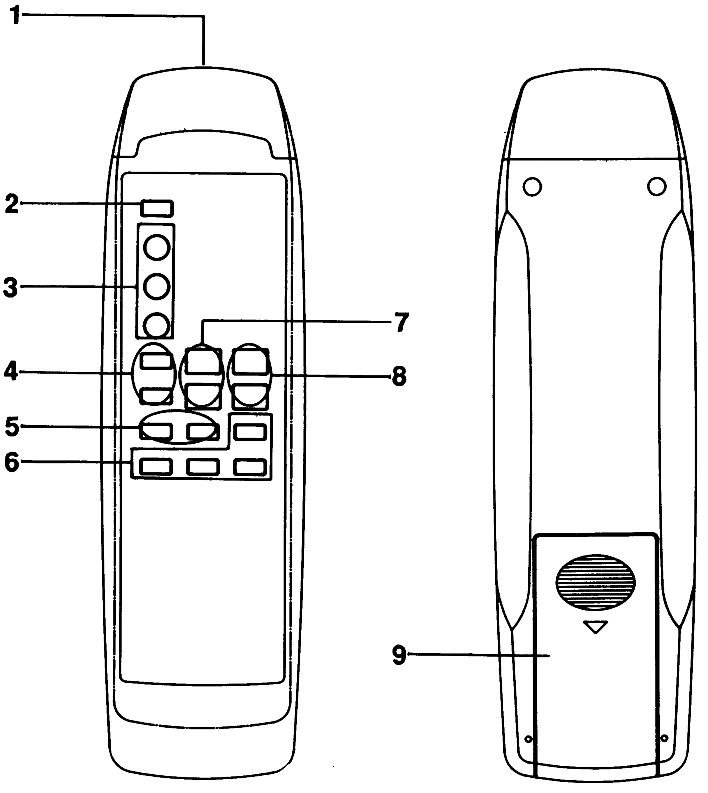
<CD MULTI Function] Display

7. [▷] Indicator
8. [▯▯] Indicator
9. [INTRO/SHUFFLE/PROGRAM/ REPEAT/ALL] Indicator
10. TRACK NO Indicator
11. Time Indicator
12. TRACK NO Indicator
13. SYNCHRO Recording Indicator

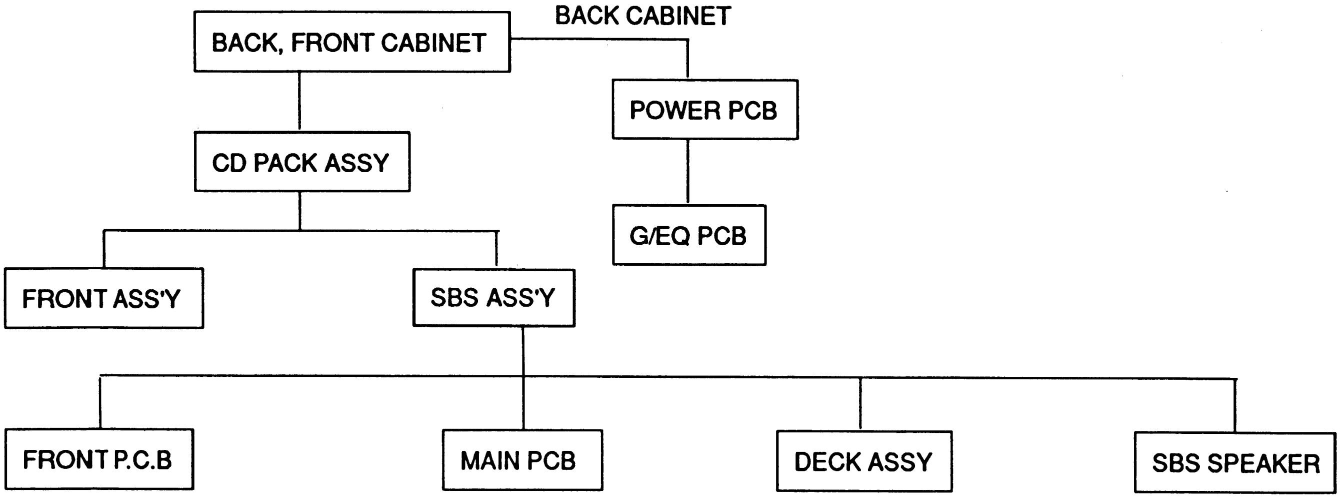

7
8
9
INTRO
SHUFFLE
PROGRAM
REPEAT
ALL
13
MIN
SEC
SYNC
OVER
18. 59:48
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
10
11
12

<REMOTE CONTROL UNIT>

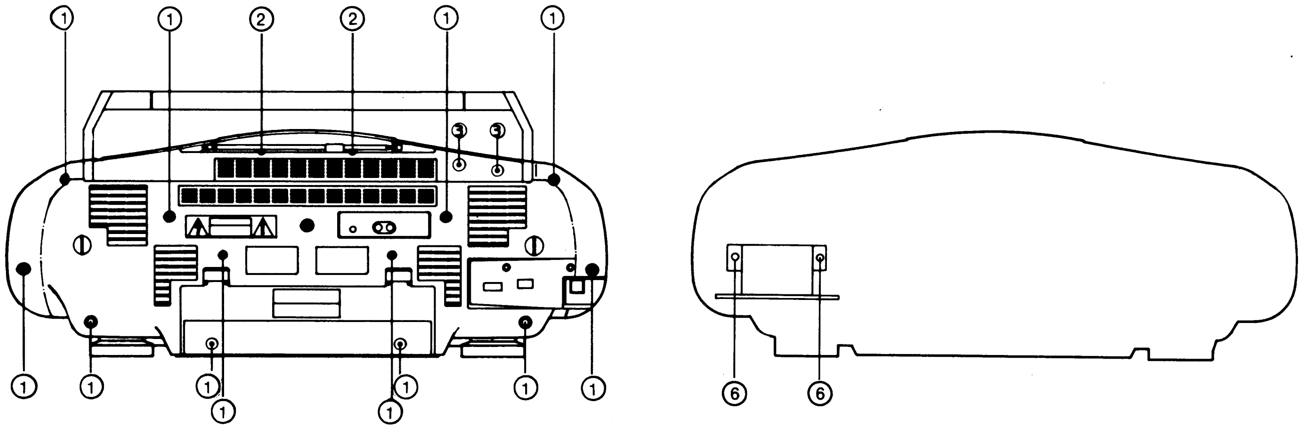
1. INFRARED TRANSMITTER WINDOW
2. POWER ON/OFF BUTTON
3. FUNCTION BUTTONS
4. PRESET BUTTONS
5. BAND/SLEEP BUTTONS
6. CD CONTROL BUTTONS
   PLAY/PAUSE BUTTON
   SKIP BUTTON
   STOP BUTTON
7. FREQUENCY UP/DOWN BUTTONS
8. VOLUME UP/DOWN BUTTONS
9. BATTERY COMPARTMENT



DISASSEMBLY INSTRUCTION


BACK, FRONT CABINET
BACK CABINET
POWER PCB
CD PACK ASSY
G/EQ PCB
FRONT ASS'Y
SBS ASS'Y
FRONT P.C.B
MAIN PCB
DECK ASSY
SBS SPEAKER

1. FRONT & BACK CABINET


①
①
②
②
①
①
③
③
①
①
①
①
①
①
①
①
⑥
⑥

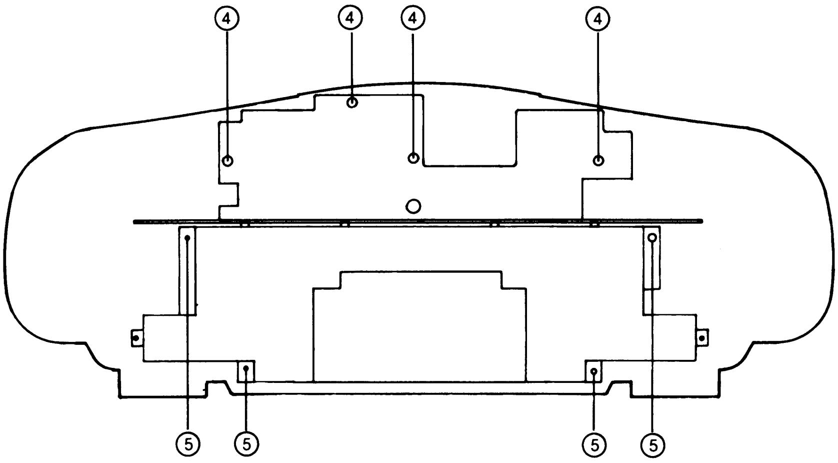
1) Remove 12 screws (1) and 2 screws (2) and pull the front cabinet towards you and disconnect connector.
2) Remove 2 screws (3) and pull off EQ and Volume knob and pull G/EQ PCB towards you.
3) Remove 2 screws (6) and pull power PCB towards you.

2. CD pack Ass'y

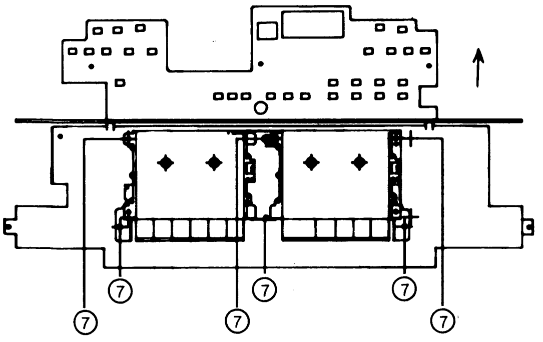
- Just push the CD Pack Ass'y back to split from the Front Cabinet

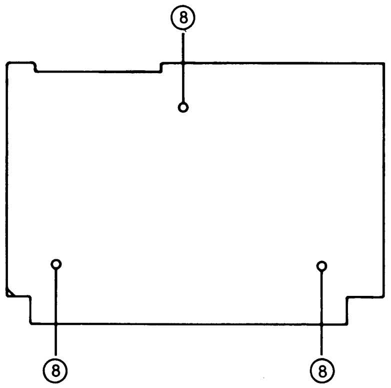
3. SBS Ass'y

- Remove 4 screws (4) and 4 screws (5) from the FRONT CABINET.



4. Deck Main PCB and Front PCB.

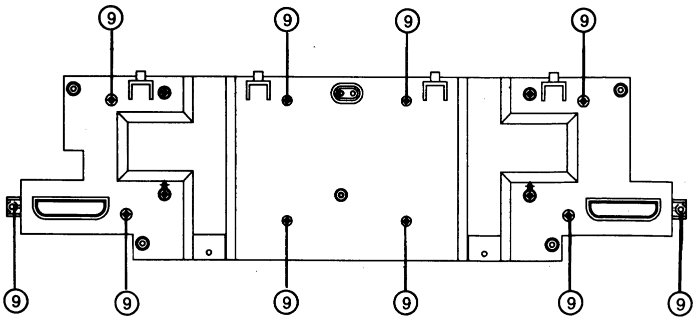




1. DECK
   Remove 6 screws and disconnect connectors
2. Main PCB
   Remove 3 screws (8)
3. FRONT PCB
   Hold Front PCB by the side and lift up

5. SBS Speaker

1. Remove speaker connector-wire from Main PCB.
2. Remove connector-wire from SBS chassis.
3. Remove 10 screws (9) from SBS chassis.

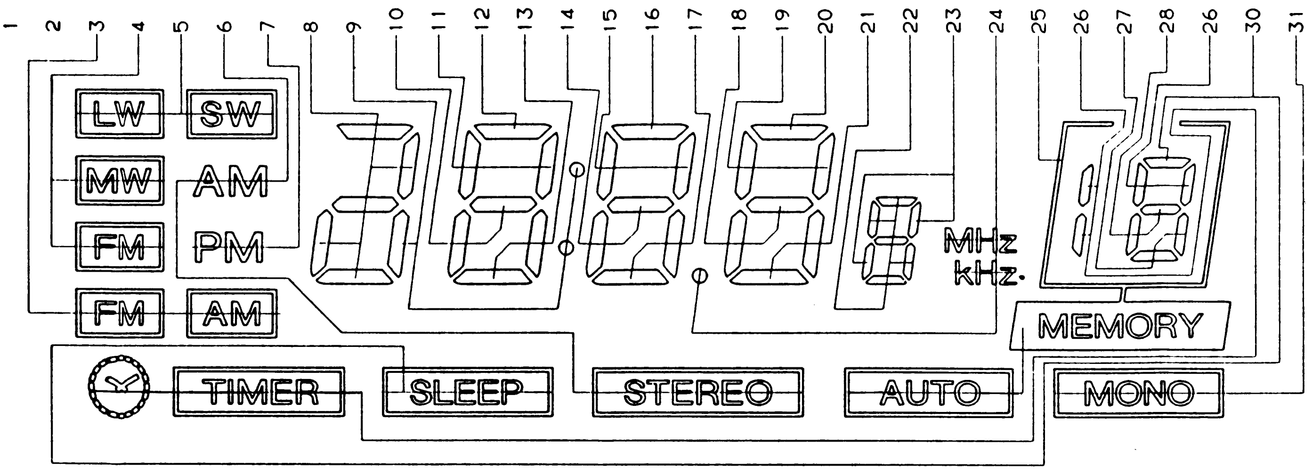


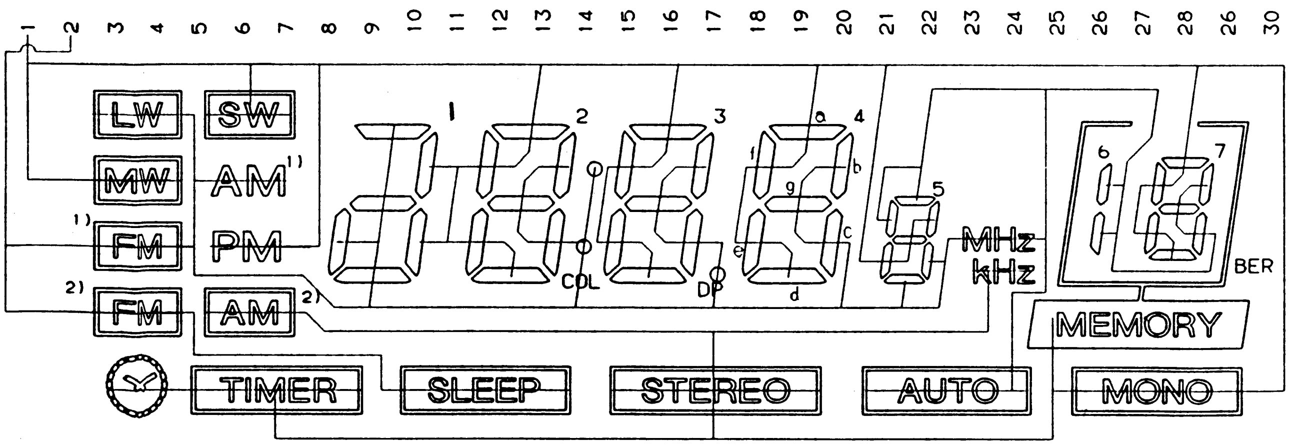
■ LCD DISPLAY

If one or all of the LCD Segments don't work, check Connection IC and LCD pins refering to the Segment Chart.

1. TUNER LCD

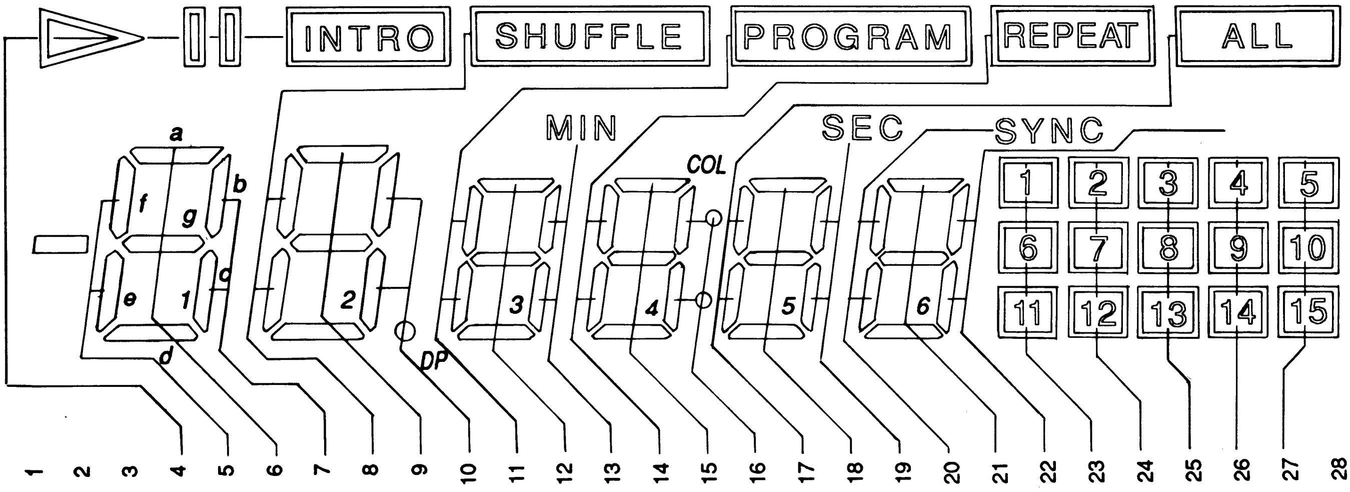
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COM 1	COM	—	AM2)	MW	SW	STEREO	PM	1b	1c	2e	2f	2a	2d	3e	3f	3a
COM 2	—	COM	FM2)	FM1)	LW	AM1)	—	1adeg	COL	2g	2b	—	2c	3g	3b	—
PIN NO	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
COM 1	3d	4e	4f	4a	4d	5g	5be	KHz	MEMORY BER	⊙ TIMER	7d	7e	7f	7a	MONO	
COM 2	3c	4g	4b	—	4c	5acdf	—	MHz DP	AOTO	6bc	7c	7g	7b	SLEEP	—	

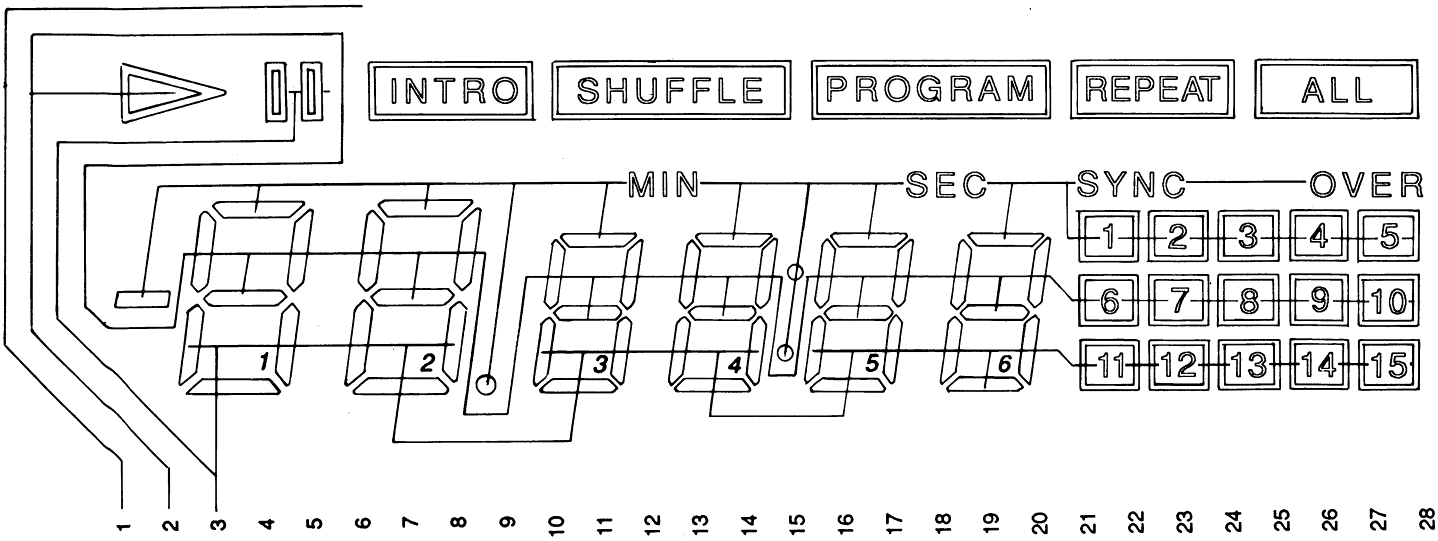

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 26 30 31
LW
SW
MW
AM
FM
PM
FM
AM
MHz
kHz
MEMORY
TIMER
SLEEP
STEREO
AUTO
MONO


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 26 30 31
LW
SW
MW
AM 1)
1) FM
PM
2) FM
AM 2)
1
2
3
4
5
6
7
a
b
c
d
e
f
g
COL
DP
MHz
kHz
BER
MEMORY
TIMER
SLEEP
STEREO
AUTO
MONO

2. CD LCD

PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COM 1	COM	—	—	INTRO	▬	1a	—	SHUFFLE	2a	DP	PROGRAM	3a	MIN	REPEAT
COM 2	—	COM	—	▷	1f	1g	1b	2f	2g	2b	3f	3g	3b	4f
COM 3	—	—	COM	▯▯	1e	1d	1c	2e	2d	2c	3e	3d	3c	4e
PIN NO	15	16	17	18	19	20	21	22	23	24	25	26	27	28
COM 1	4a	COL	ALL	5a	SEC	SYNC	6a	OVER	1	2	3	4	5	
COM 2	4g	4b	5f	5g	5b	6f	6g	6b	6	7	8	9	10	
COM 3	4d	4c	5e	5d	5c	6e	6d	6c	11	12	13	14	15	

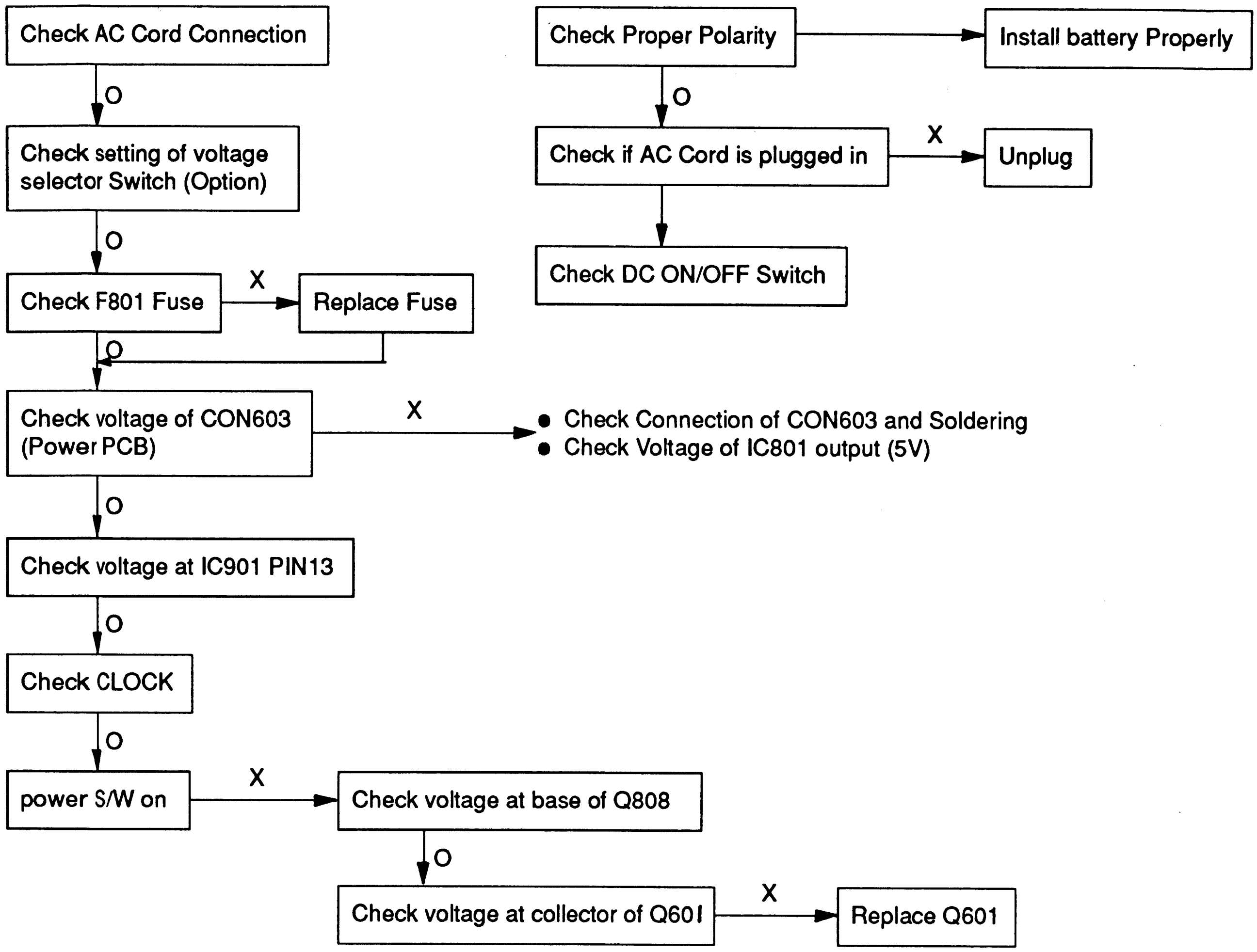

INTRO
SHUFFLE
PROGRAM
REPEAT
ALL
MIN
SEC
SYNC
COL
DP
a
b
c
d
e
f
g
1
2
3
4
5
6
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28


INTRO
SHUFFLE
PROGRAM
REPEAT
ALL
MIN
SEC
SYNC
OVER
1
2
3
4
5
6
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

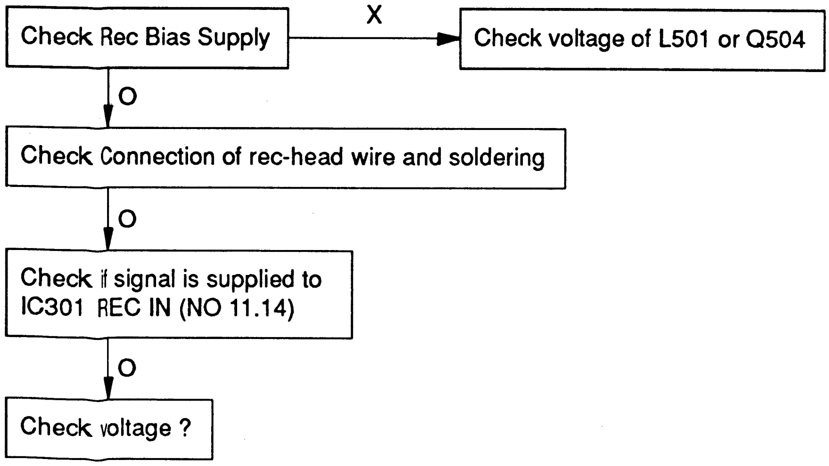
TROUBLE SHOOTING CHART

1. AC POWER INSENSIBLE

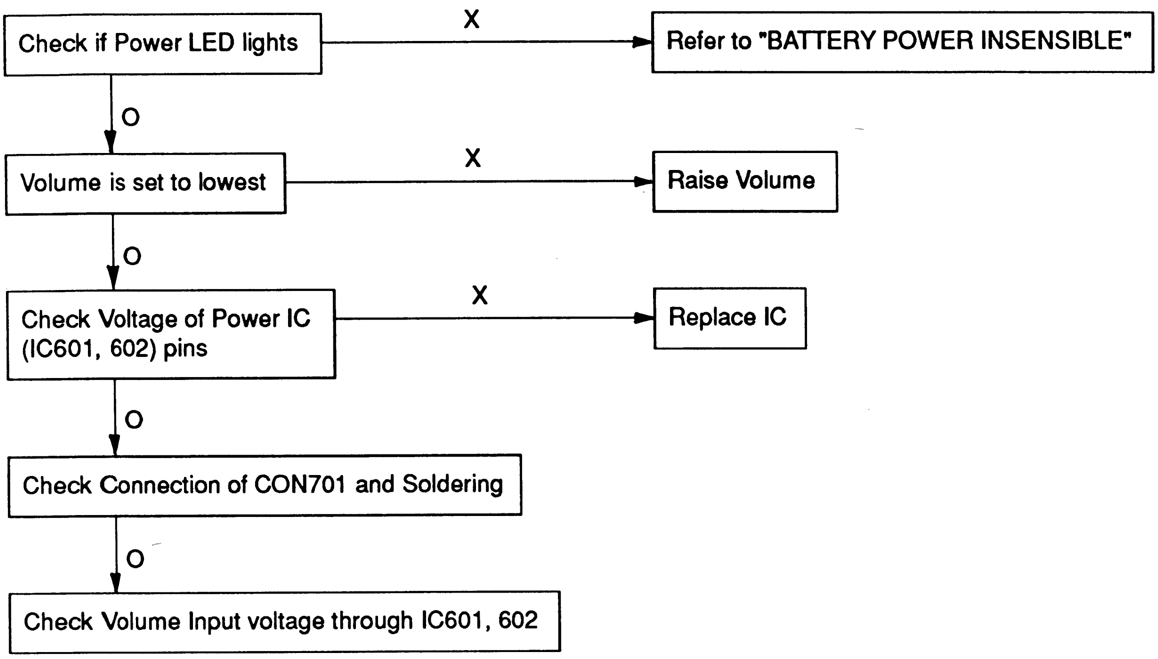
2. BATTERY POWER INSENSIBLE


Check AC Cord Connection
O
Check setting of voltage selector Switch (Option)
O
Check F801 Fuse
X
Replace Fuse
O
Check voltage of CON603 (Power PCB)
X
● Check Connection of CON603 and Soldering
● Check Voltage of IC801 output (5V)
O
Check voltage at IC901 PIN13
O
Check CLOCK
O
power S/W on
X
Check voltage at base of Q808
O
Check voltage at collector of Q601
X
Replace Q601
Check Proper Polarity
Install battery Properly
O
Check if AC Cord is plugged in
X
Unplug
Check DC ON/OFF Switch

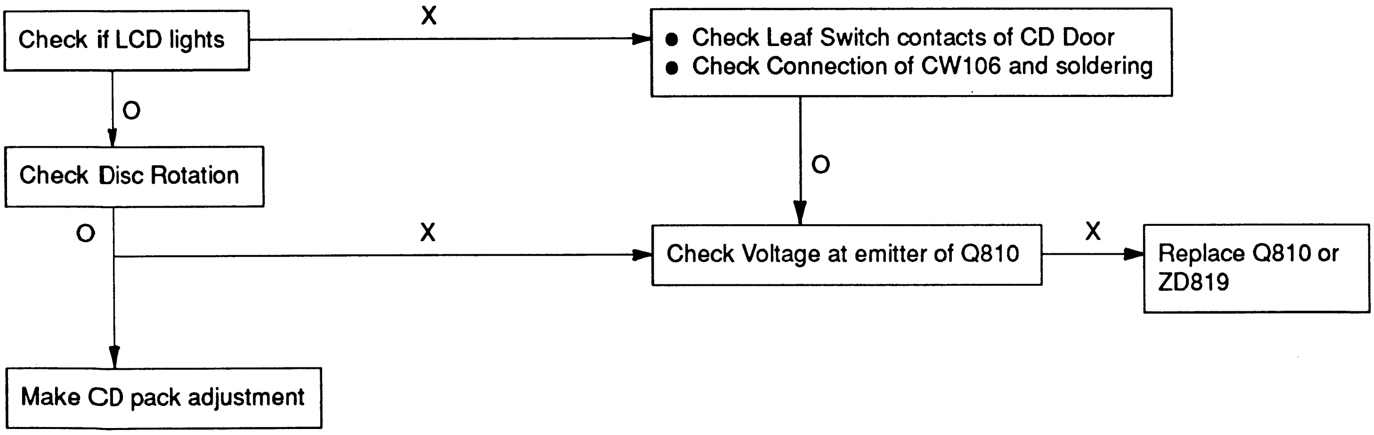
3. RECORDING NOT WORKING


Check Rec Bias Supply
X
Check voltage of L501 or Q504
O
Check Connection of rec-head wire and soldering
O
Check if signal is supplied to IC301 REC IN (NO 11.14)
O
Check voltage ?

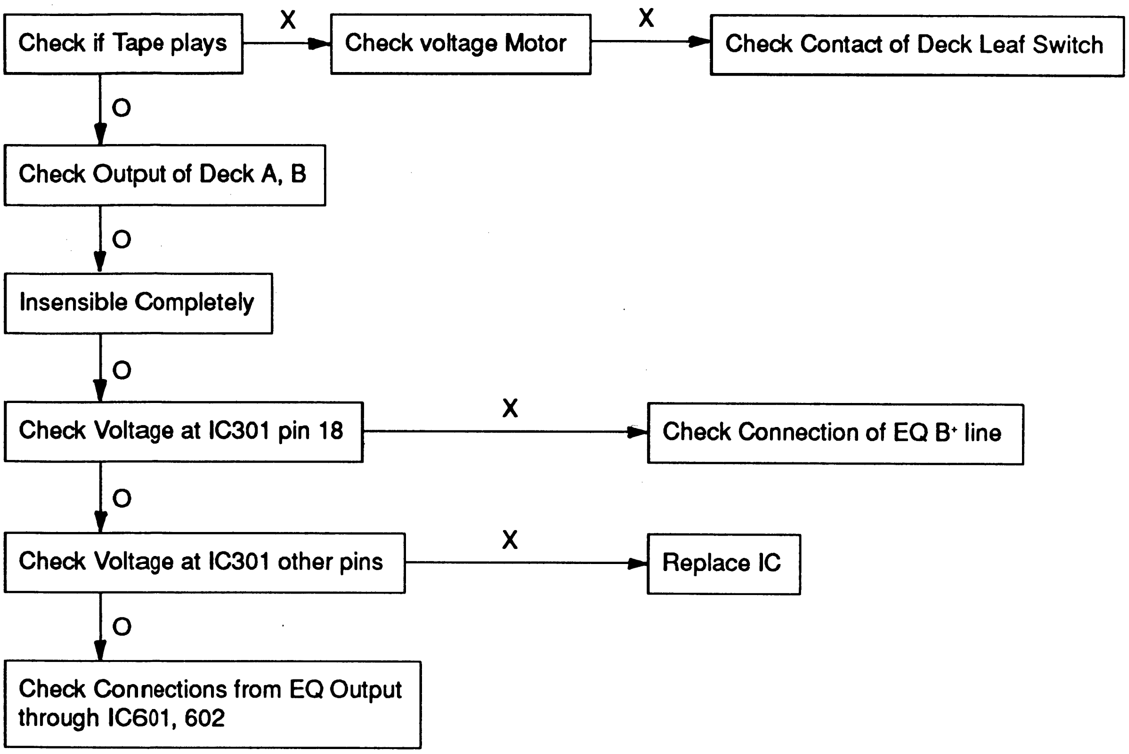
4. NO OUTPUT


Check if Power LED lights
X
Refer to "BATTERY POWER INSENSIBLE"
O
Volume is set to lowest
X
Raise Volume
O
Check Voltage of Power IC (IC601, 602) pins
X
Replace IC
O
Check Connection of CON701 and Soldering
O
Check Volume Input voltage through IC601, 602

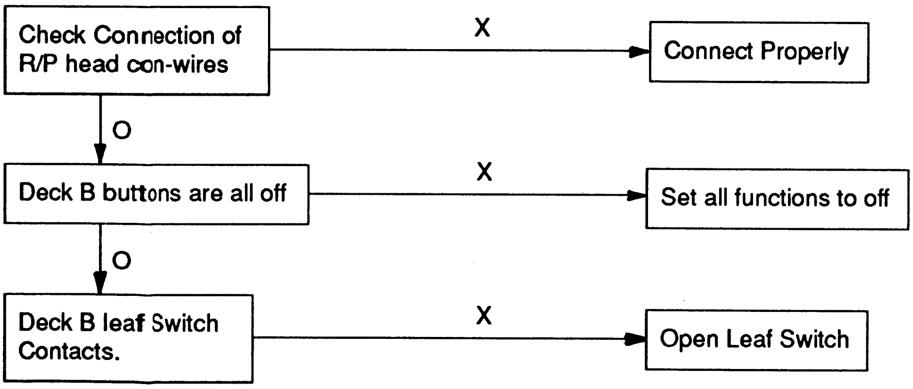
5. COMPACT DISC INOPERATIVE


Check if LCD lights
X
● Check Leaf Switch contacts of CD Door
● Check Connection of CW106 and soldering
O
Check Disc Rotation
O
O
X
Check Voltage at emitter of Q810
X
Replace Q810 or ZD819
Make CD pack adjustment

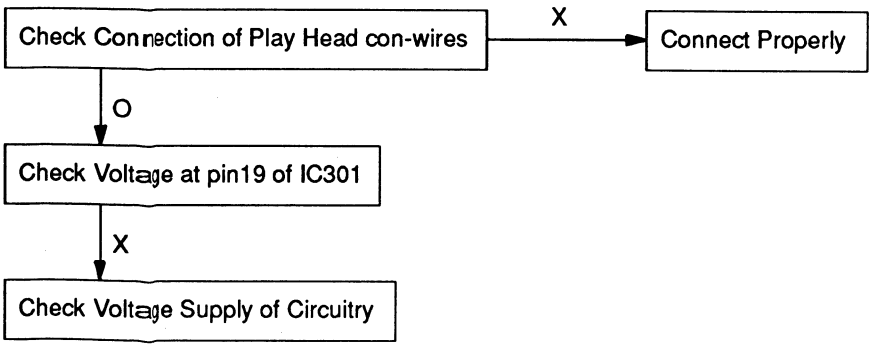
6. TAPE NOT WORKING


Check if Tape plays
X
Check voltage Motor
X
Check Contact of Deck Leaf Switch
O
Check Output of Deck A, B
O
Insensible Completely
O
Check Voltage at IC301 pin 18
X
Check Connection of EQ B⁺ line
O
Check Voltage at IC301 other pins
X
Replace IC
O
Check Connections from EQ Output through IC601, 602

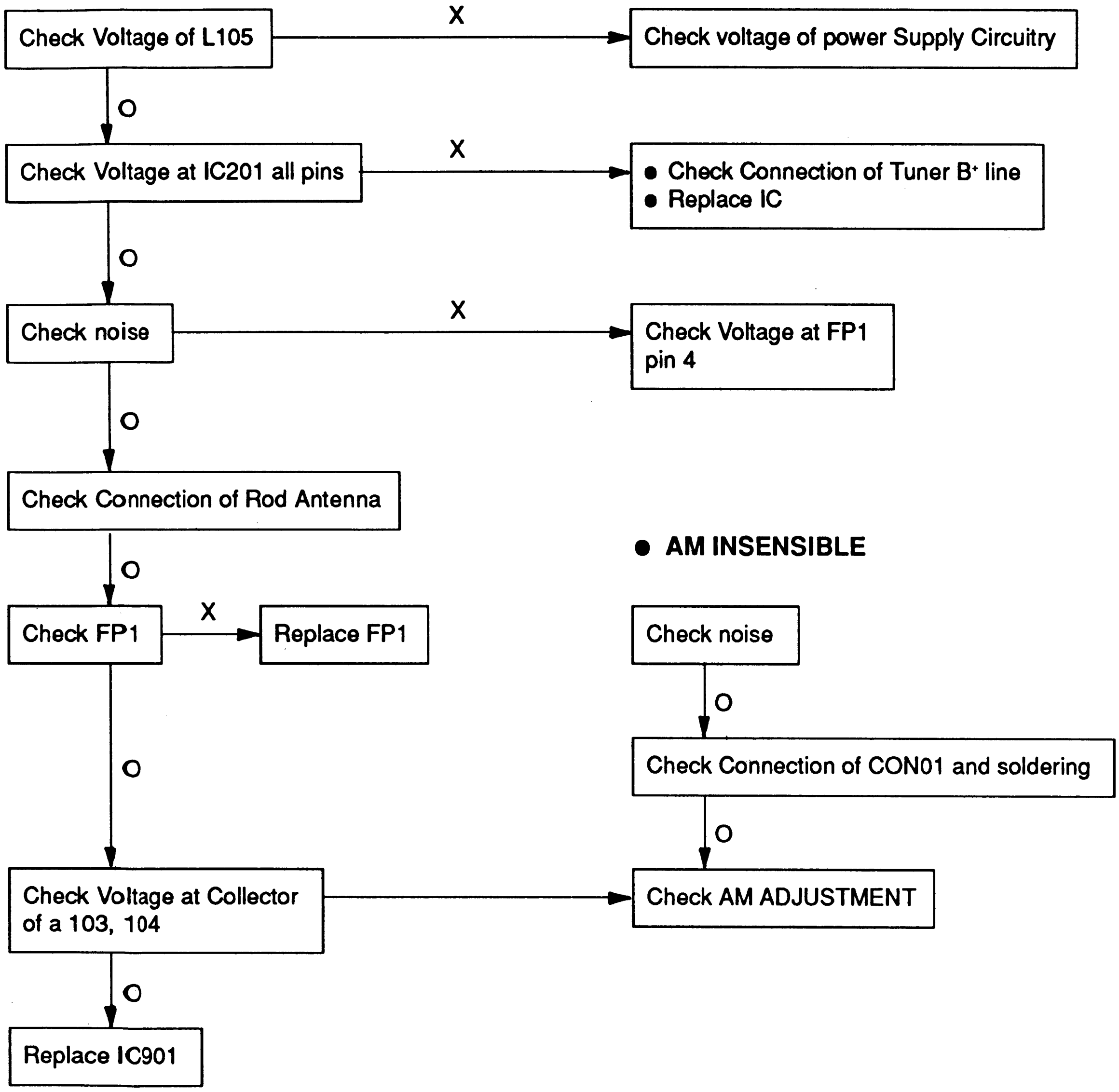
● DECK A INOPERATIVE


Check Connection of R/P head con-wires
X
Connect Properly
O
Deck B buttons are all off
X
Set all functions to off
O
Deck B leaf Switch Contacts.
X
Open Leaf Switch

● DECK B INOPERATIVE


Check Connection of Play Head con-wires
X
Connect Properly
O
Check Voltage at pin19 of IC301
X
Check Voltage Supply of Circuitry

7. RADIO INSENSIBLE


Check Voltage of L105
X
Check voltage of power Supply Circuitry
O
Check Voltage at IC201 all pins
X
● Check Connection of Tuner B⁺ line
● Replace IC
O
Check noise
X
Check Voltage at FP1 pin 4
O
Check Connection of Rod Antenna
O
Check FP1
X
Replace FP1
O
Check Voltage at Collector of a 103, 104
O
Replace IC901
● AM INSENSIBLE
Check noise
O
Check Connection of CON01 and soldering
O
Check AM ADJUSTMENT

■ ADJUSTMENT

ADJUSTMENT PROCEDURE

INSTRUMENT AND TOOLS

1. FM, AM STANDARD SIGNAL GENERATOR (SSG)
2. OSCILLOSCOPE
3. FREQUENCY COUNTER
4. VTVM
5. LOOP ANTENNA
6. DUMMY LOAD (4 OHM)
7. DIGITAL TESTER

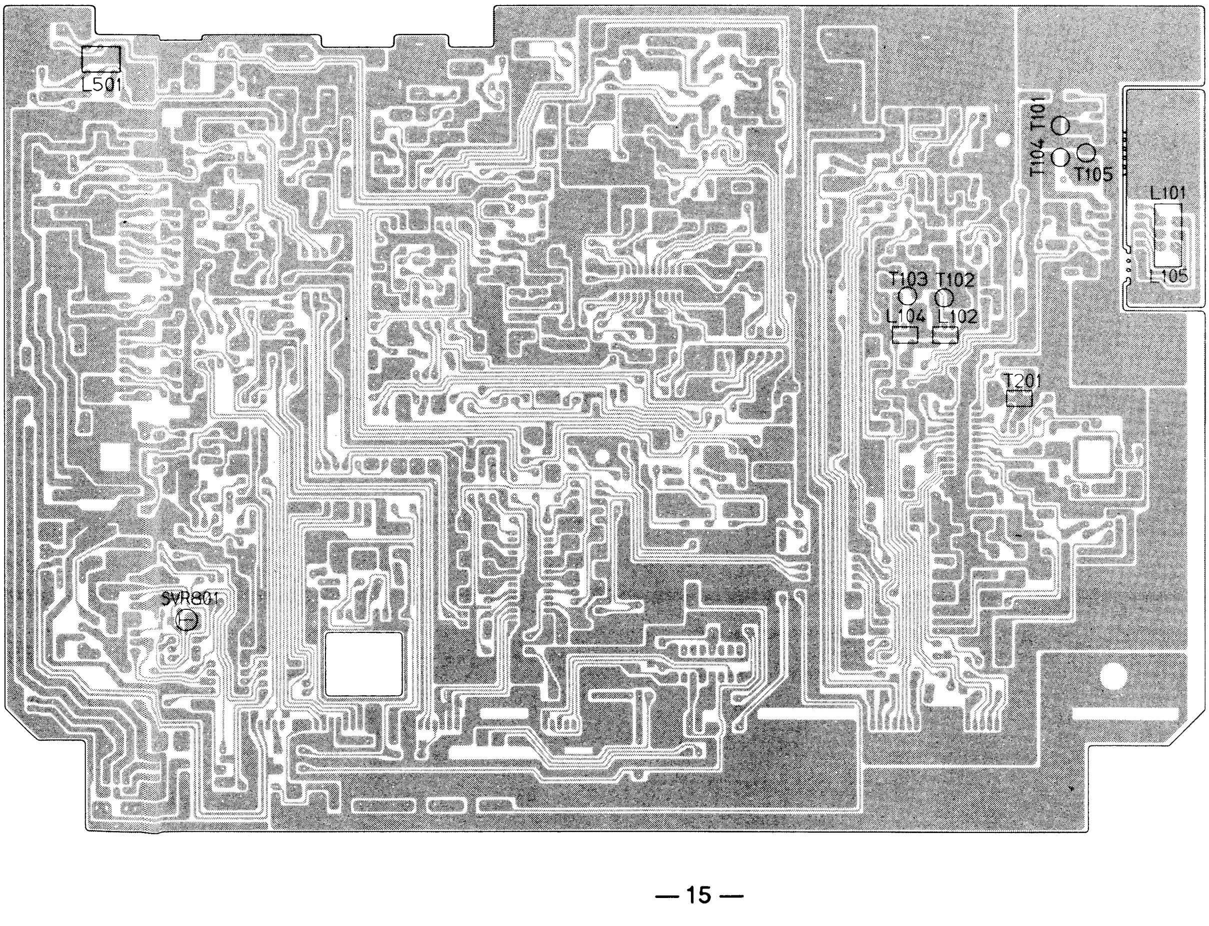
BEFORE MAKING ADJUSTMENT

1. Check the power source voltage.
2. Select desired Band and Function.
3. Set Tone Control at mid position
4. Modulate AM to 30% amplitude with 400Hz signal and FM to 22.5MHz deviation with 400Hz signal.
5. Set Volume Control to approximately 50mW (4Ohm)

● ADJUSTMENT POINT LOCATION (AUDIO SECTION)

MAIN PCB (PARTS SIDE)

- T105 : AM ANT TRIMMER (1404KHz: 2BAND)
- T102 : AM ASC TRIMMER (1611, 1720KHz)
- T104 : AM ANT TRIMMER (1404KHz)
- L102 : AM OSC COIL (522, 530KHz)
- L101 : AM ANT COIL (594KHz)
- L501 : REC BIAS COIL (85KHz)
- T101 : LW ANT TRIMMER (270KHz)
- T103 : LW OSC TRIMMER (295KHz)
- L104 : LW OSC COIL (146KHz)
- L105 : LW ANT COIL (164KHz)
- T201 : AM IFT COIL (594KHz)
- SVR801 : SPEED CONTROL (2985KHz)



1. MW(AM)/LW ADJUSTMENT

ITEM	CONNECTION	STEP	S.S.G Frequency	RADIO Freq. Setting	Adjustment Point	RESULT
MW(AM) FREQUENCY RANGE	Fig. 2	1	522(530)KHz	522 or 530KHz	L102 AM OSC coil	D/TESTER: 1.2 ± 0.05V
		2	1611(1720)KHz	1611 or 1720KHz	T102 AM OSC trimmer	D-TESTER: 7.8 ± 0.05V
		3.	Repeat steps 2 and 3 several times.			
IF	Fig. 1	4	594KHz	594KHz	T201 AM IFT coil	Maximum output
MW(AM) TRACKING	Fig. 2	5	594KHz	594KHz	AM AN coil L101	Maximum output
		6	1404KHz	1404KHz	AM ANT trimmer (T104)	Maximum output
		7	Repeat steps 5 and 6 several times			
LW FREQUENCY RANGE	Fig. 2	8	146KHz	146KHz	L104 LW OSC coil	D-TESTER: 0.9V ± 0.05V
		9	290KHz	290KHz	T103 LW OSC trimmer	D-TESTER: 4.95V±0.05V
		10	Repeat steps 8 and 9 several times			
LW TRACKING	Fig. 2	11	170KHz	170KHz	L105 LW ANT coil	Maximum output
		12	250KHz	250KHz	T101 LW ANT trimmer	Maximum output
		13	Repeat steps 11 and 12 several times			

2. FM : NO ADJUSTMENT

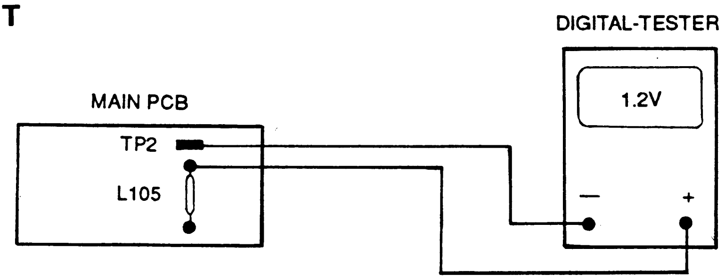


Fig. 1

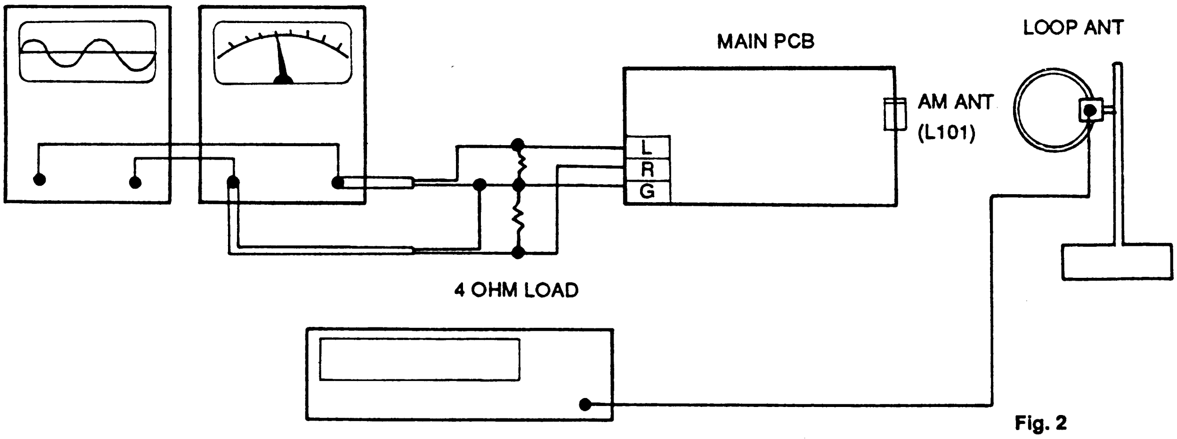


Fig. 2

3. TAPE SECTION

1. RECORDING BIAS ADJUSTMENT

a) Connect the frequency counter to JW88 of L501 (Bias Coil) as shown in the figure 3.
b) Press [RECORD] button (●) of DECK A and adjust L501 so the frequency Counter reads reads 85KHz.

2. TAPE SPEED ADJUSTMENT

a) Connect the equipments as Fig. 4 to adjust the tape speed with test tape [recorded at 3KHz, MTT-111N] in DECK B.
b) Adjust the semifixed resistor (SVR801) so that the frequency counter reads 2985Hz ± 10Hz.
c) Insert a test tape into DECK A and check if the frequency counter reads 2985Hz ± 10Hz.

3. TAPE AZIMUTH ADJUSTMENT

a) Connect the equipments as per Fig. 5 to adjust the tape azimuth with test tape (recorded at 10KHz MTT-114N).
b) Press play with loading a test tape in deck A and set Volume Control approximately 50mW, (4 OHM.)
c) Adjust the azimuth adjustment screw of left side of record/play head for maximum output and for the same channel phase. (See fig. 6)
d) Repeat steps a, b, c in deck B.
e) Secure adjustment screw with glue after adjustment is complete.

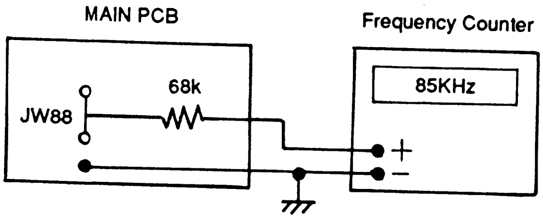

MAIN PCB
Frequency Counter
JW88
68k
85KHz
+
−

Fig. 3

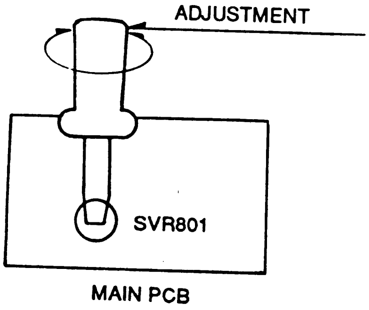

ADJUSTMENT
SVR801
MAIN PCB

Fig. 4

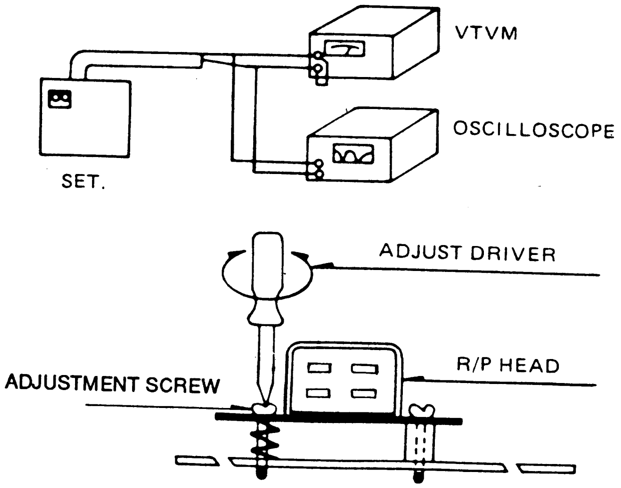

VTVM
OSCILLOSCOPE
SET.
ADJUST DRIVER
R/P HEAD
ADJUSTMENT SCREW

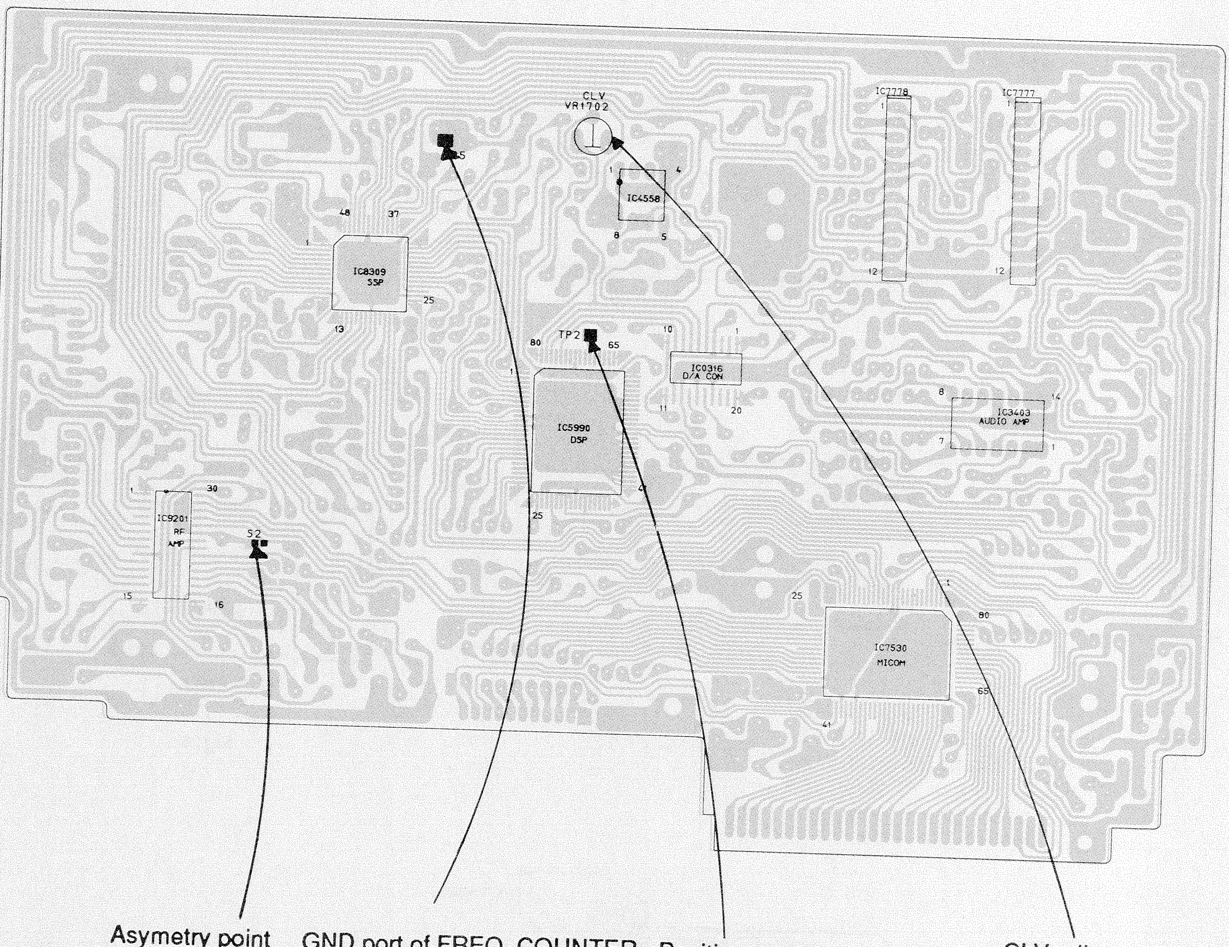
Fig. 5

■ CD ADJUSTMENT

1) CLV ADJUSTMENT

10 : 1 damping probe.

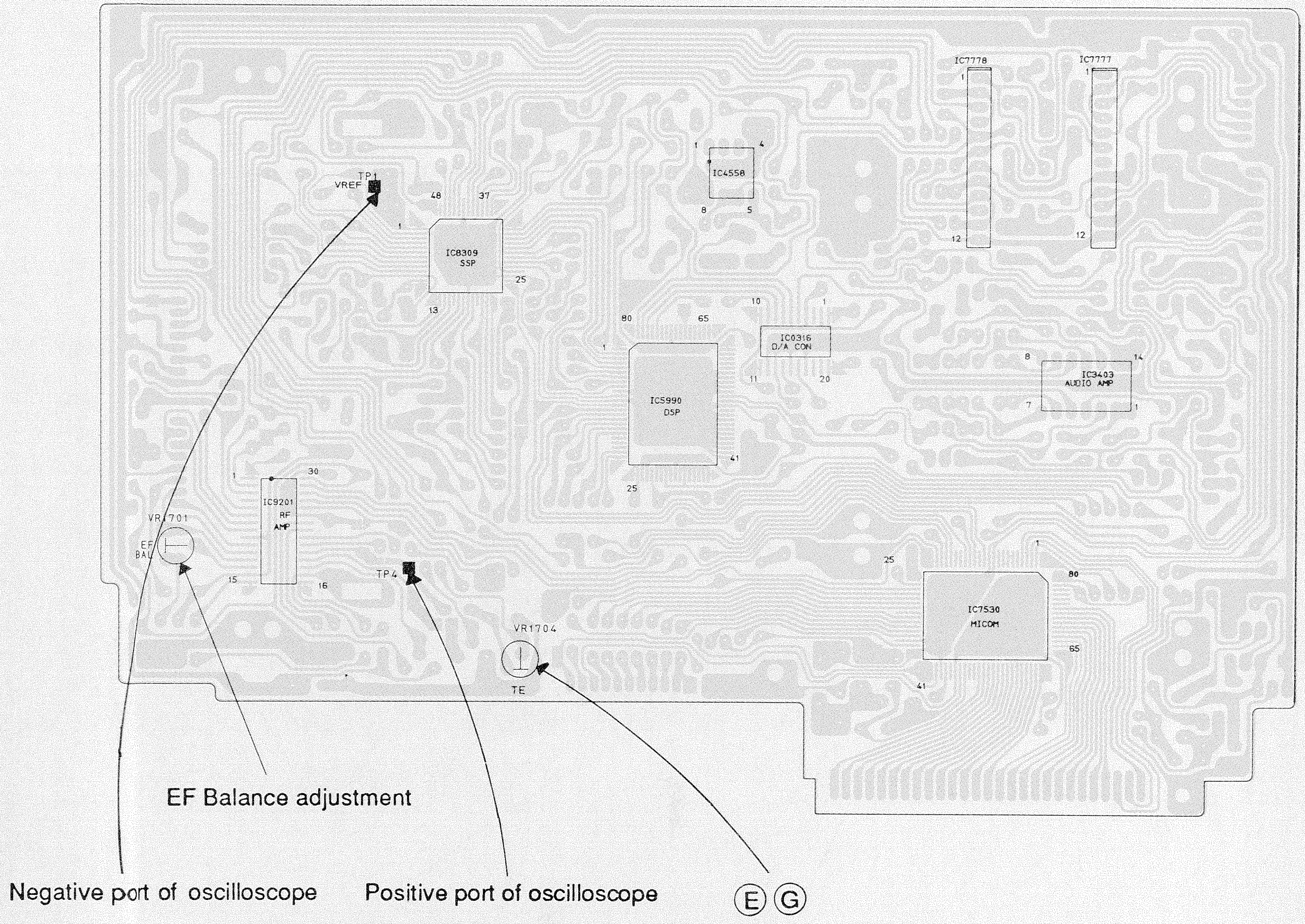
A. Turn power on without loading a disc.
B. Connect S2 (Asymetry ; short)
C. Connect TP5 to GND and TP2 to positive terminal on the Frequency Counter.
D. Adjust VR 1702 so that the Frequency Counter reads 4.460MHz ± (0.01MHz).
E. Disconnect S2.

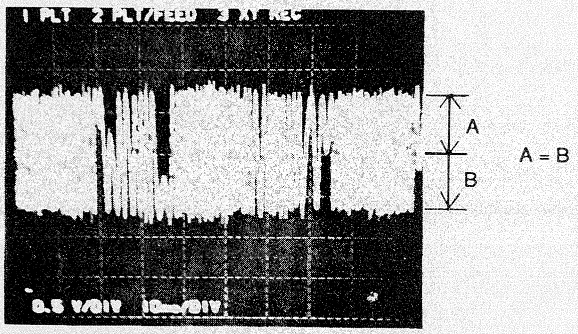

CLV
VR1702
IC7778
IC7777
IC4558
IC8309
SSP
TP2
IC0316
D/A CON
IC3403
AUDIO AMP
IC5990
DSP
IC9201
RF
AMP
S2
IC7530
MICOM

Asymetry point GND port of FREQ. COUNTER Positive port of FREQ. COUNTER CLV adjustment

2) EF BALANCE ADJUSTMENT (Power On)

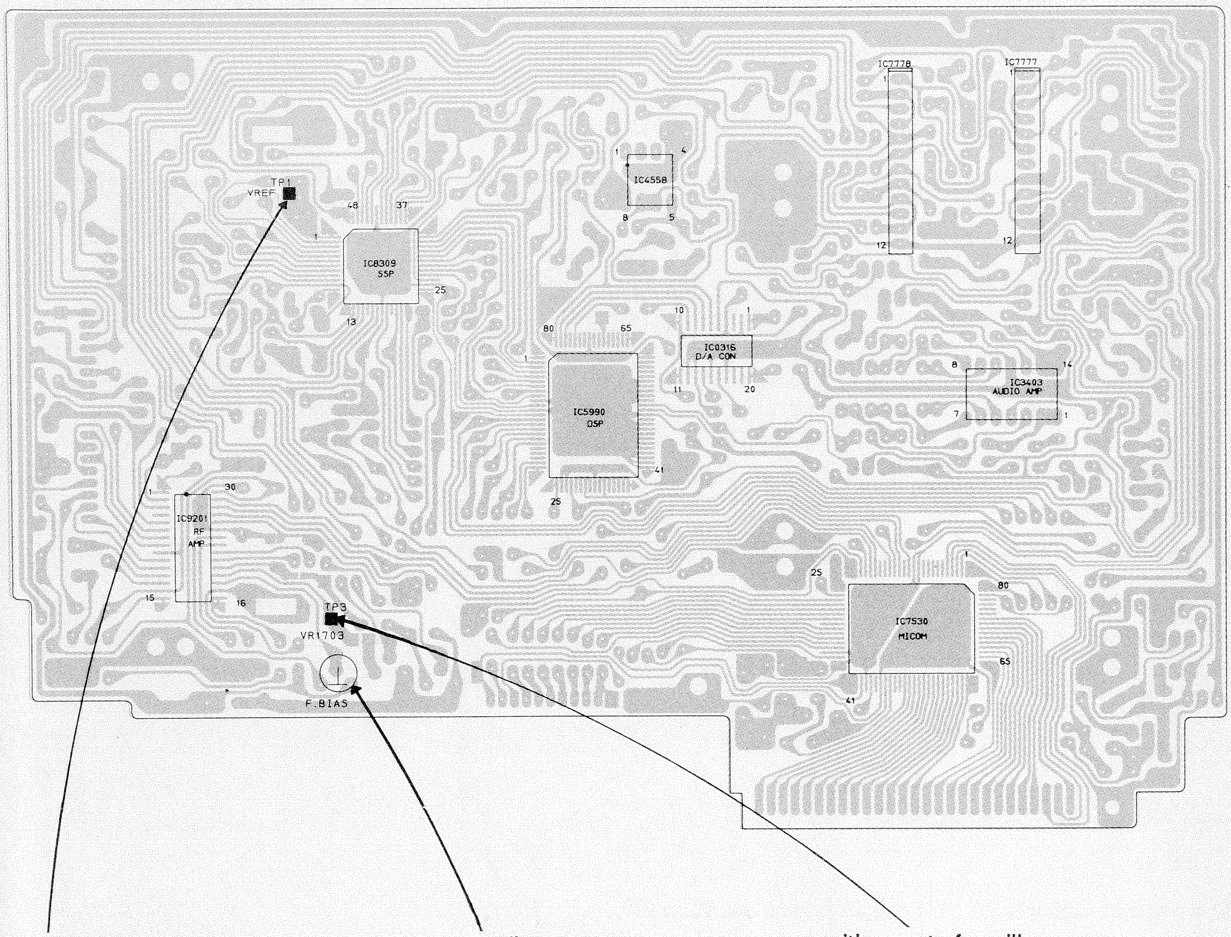
A. Set Oscilloscope Time/Div to 2mS.
B. Set Oscilloscope Volt/Div to 0.5V.
C. Connect TP1 (Vref) to GND and TP4 (T.E) to positive terminal on the oscilloscope.
D. Press PLAY with loading a disc.
E. Turn VR1704 all the way counter clockwise. (Sound comes out abnormally and discontinuously.)
F. Adjust VR1701 so that the waveform is equally symmetrical above and below. (A = B)
G. Turn VR1704 to play sound normally. (Nearly mid-positon of VR1704)


IC7778
IC7777
IC4558
TP1
VREF
IC8309
SSP
IC0316
D/A CON
IC3403
AUDIO AMP
IC5990
DSP
IC9201
RF
AMP
VR1701
EF
BAL
TP4
VR1704
TE
IC7530
MICOM
EF Balance adjustment
Negative port of oscilloscope
Positive port of oscilloscope
Ⓔ Ⓖ


1 PLT 2 PLT/FEED 3 XY REC
0.5 V/DIV 10ms/DIV
A
B
A = B

3) FOCUS BIAS ADJUSTMENT

A. Turn power on without loading a disc.
B. Set Oscilloscope Vol/Div to DC200mV.
C. Connect TP1 (Vref) to GND and TP3 (F.E) to positive terminal on the oscilloscope.
D. Adjust VR1703 so that the voltage is 200mV DC on the oscilloscope.


IC7778
IC7777
IC4558
TP1
VREF
IC8309
SSP
IC0316
D/A CON
IC3403
AUDIO AMP
IC5990
DSP
IC9201
RF
AMP
TP3
VR1703
F.BIAS
IC7530
MICOM

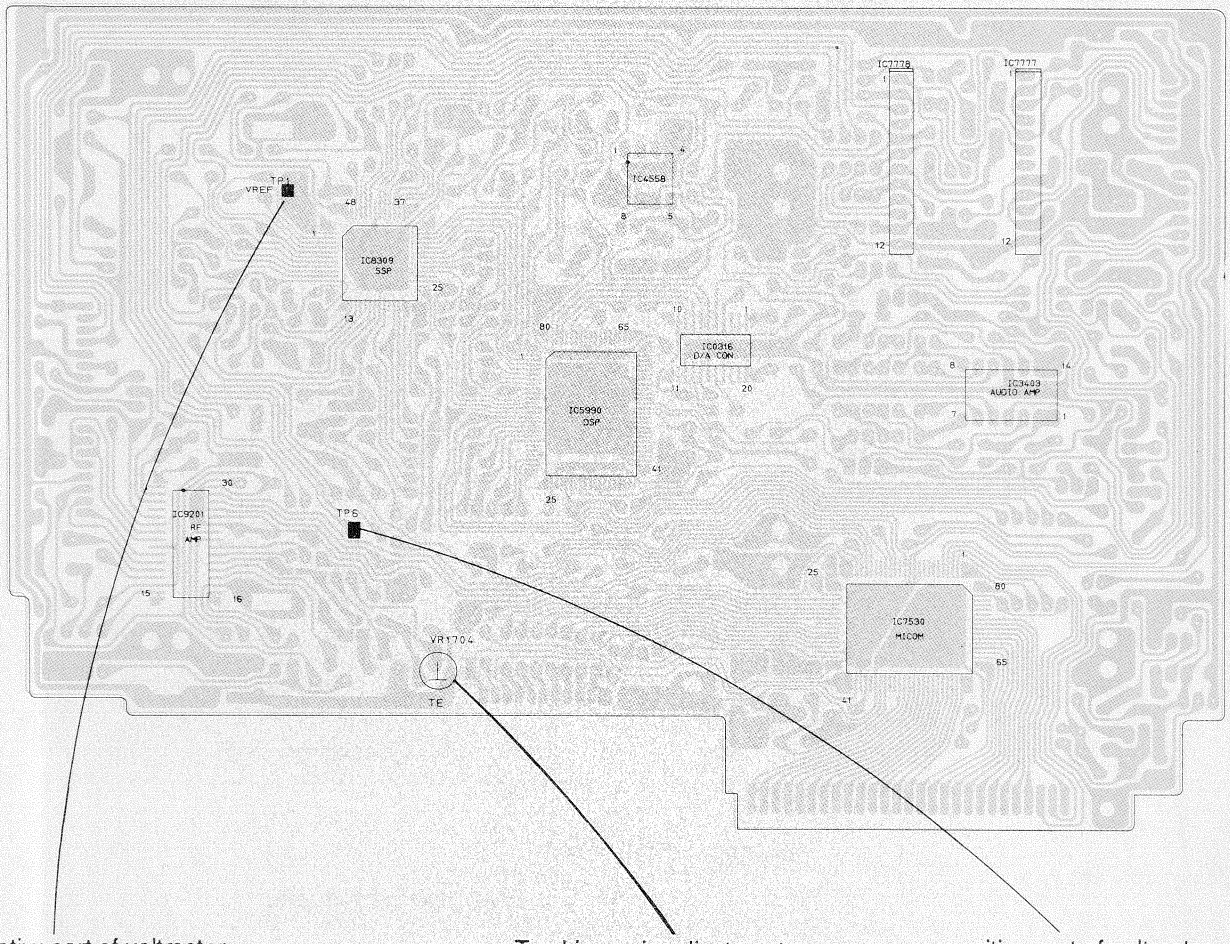
Negative port of oscilloscope

FOCUS bias adjustment

positive port of oscilloscope

4) TRACKING GAIN ADJUSTMENT (Power On)

A. Connect TP1 (Vref) to GND and TP6 (T.E) to positive terminal on the Volt Meter.
B. Press PLAY with loading a disc.
C. Adjust VR1704 so that the Volt Meter reads 31 ± 0.5mV AC.


TP1
VREF
IC8309
SSP
IC4558
IC7778
IC7777
IC0316
D/A CON
IC5990
DSP
IC3403
AUDIO AMP
IC9201
RF
AMP
TP6
VR1704
TE
IC7530
MICOM

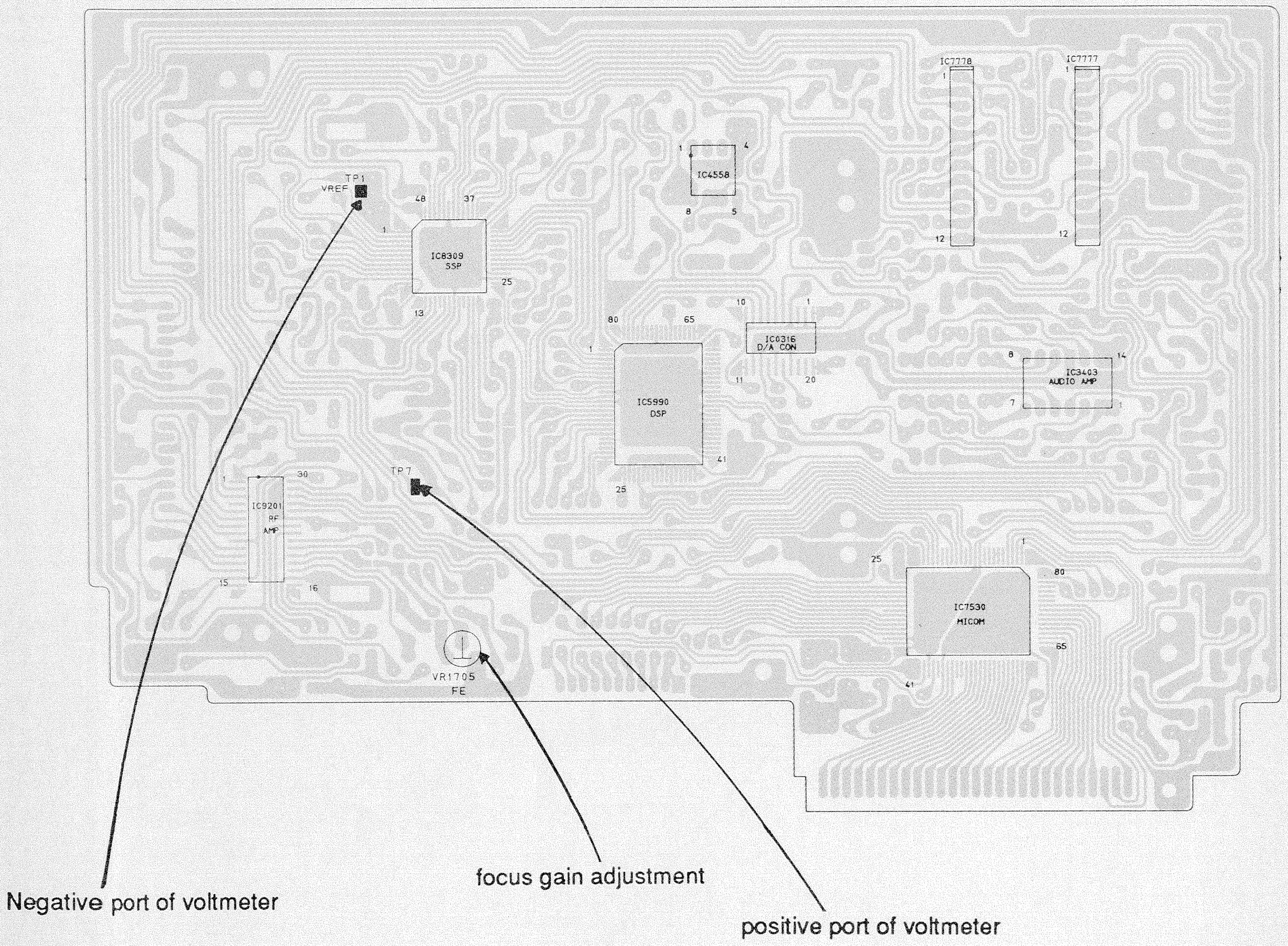
Negative port of voltmeter

Tracking gain adjustment

positive port of voltmeter

5) FOCUS GAIN ADJUSTMENT (Power On)

A. Connect TP1 (Vref) to GND and TP7 (F.E) to positive terminal on the Volt Meter.
B. Press PLAY with loading a disc.
C. Adjust VR 1705 so that Volt Meter reads 19 ± 0.5mV AC.


TP1
VREF
IC8309
SSP
IC4558
IC7778
IC7777
IC0316
D/A CON
IC5990
DSP
IC3403
AUDIO AMP
IC9201
RF
AMP
TP7
VR1705
FE
IC7530
MICOM

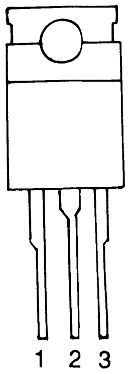
Negative port of voltmeter

focus gain adjustment

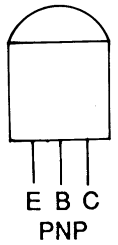
positive port of voltmeter

IC AND TR LEAD LAY OUT

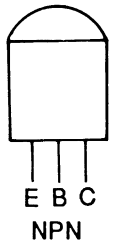
1) RADIO/CASSETTE SECTION



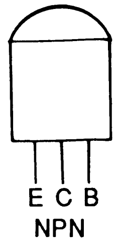
MC78M05C : IC801
(VOLTAGE REGULATOR)
1. INPUT
2. GND
3. OUTPUT



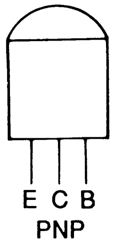
KSA 708-Y
KSA 733-Y



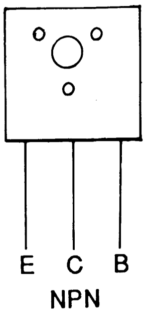
KSC1008-Y
KSC1222-L
KSC 945-L
KSD 471-Y



KSR1007
KSR1009

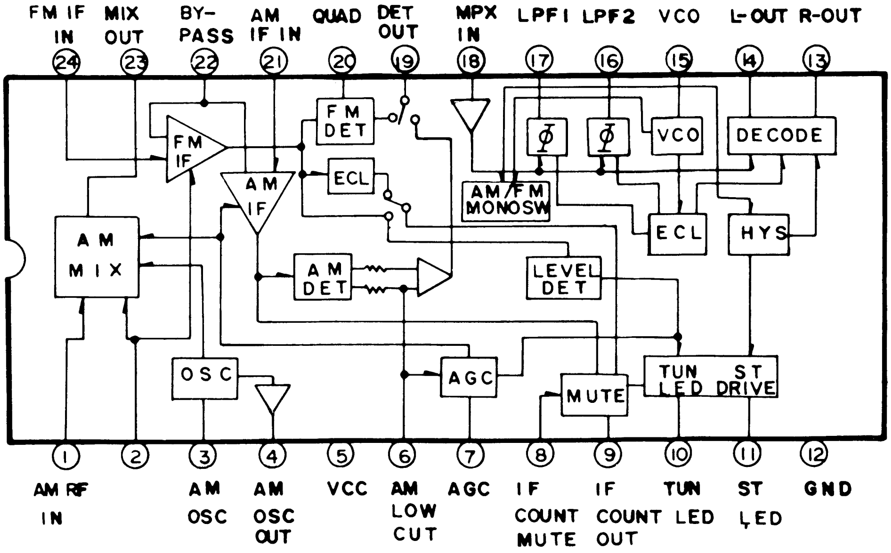


KSR2007
KSR2003

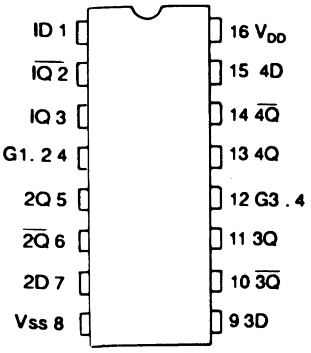


KSD 882-O

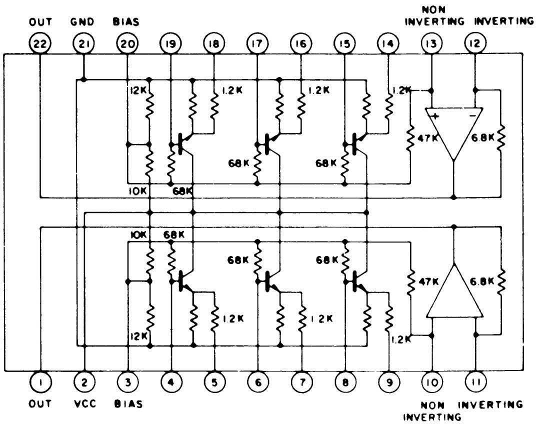
IC201 TA8132N: TUNER


FM IF IN
MIX OUT
BY-PASS
AM IF IN
QUAD
DET OUT
MPX IN
LPF1
LPF2
VCO
L-OUT
R-OUT
24
23
22
21
20
19
18
17
16
15
14
13
FM IF
FM DET
Φ
Φ
VCO
DECODE
AM IF
ECL
AM/FM MONOSW
ECL
HYS
AM MIX
AM DET
LEVEL DET
OSC
AGC
MUTE
TUN LED
ST DRIVE
1
2
3
4
5
6
7
8
9
10
11
12
AM RF IN
AM OSC
AM OSC OUT
VCC
AM LOW CUT
AGC
IF COUNT MUTE
IF COUNT OUT
TUN LED
ST LED
GND

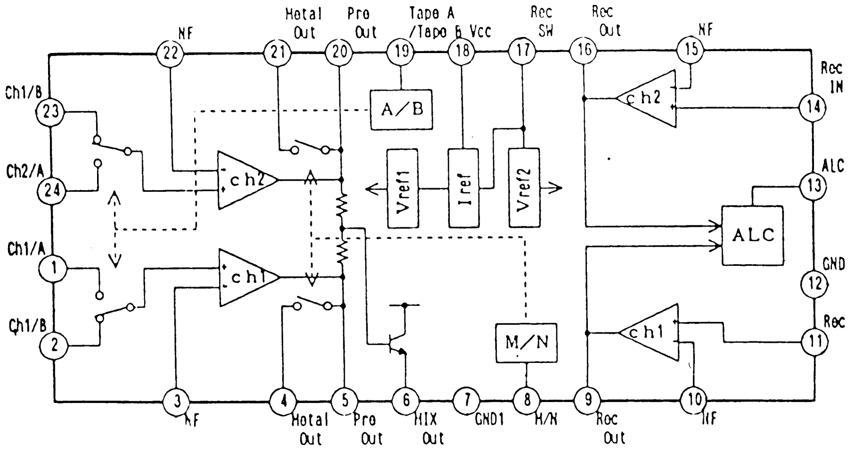
- LC74HC375 (LED DRIVER): IC781


1D 1
$\overline{1Q}$ 2
1Q 3
G1.2 4
2Q 5
$\overline{2Q}$ 6
2D 7
Vss 8
16 V_{DD}
15 4D
14 $\overline{4Q}$
13 4Q
12 G3.4
11 3Q
10 $\overline{3Q}$
9 3D

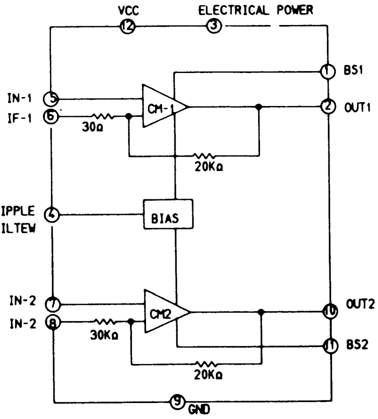
IC701 KA22233: 3 BAND G/EQUALIZER


OUT
GND
BIAS
NON INVERTING
INVERTING
22
21
20
19
18
17
16
15
14
13
12
12K
1.2K
1.2K
1.2K
47K
6.8K
68K
68K
10K
68K
10K
68K
68K
68K
47K
6.8K
1.2K
1.2K
12K
1.2K
1
2
3
4
5
6
7
8
9
10
11
OUT
VCC
BIAS
NON INVERTING
INVERTING

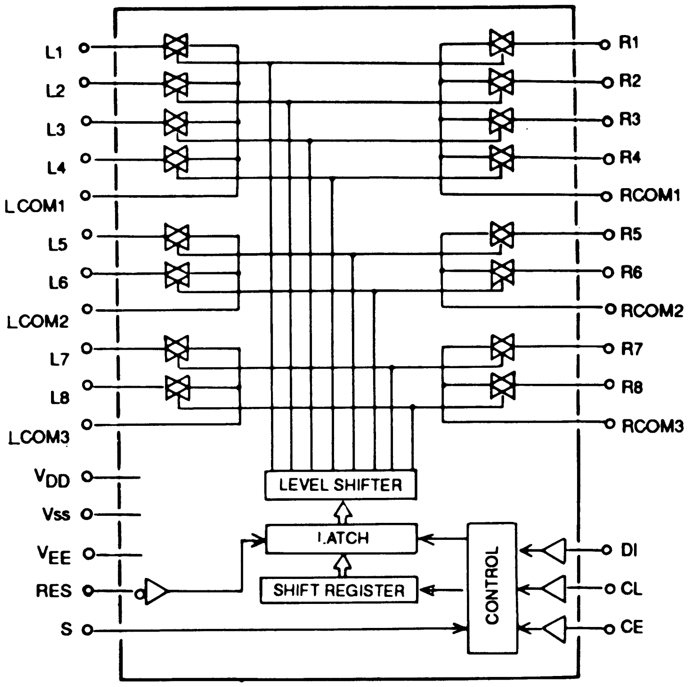
IC301: TA8189N : (PRE/REC AMP)


Hotal Out
Pro Out
Tape A /Tape B Vcc
Rec SW
Rec Out
NF
Rec IN
Ch1/B
Ch2/A
Ch1/A
Ch1/B
ALC
GND
Rec
A/B
Vref1
Iref
Vref2
ch2
ch1
ch2
ch1
ALC
M/N
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
NF
Hotal Out
Pro Out
HIX Out
GND1
H/N
Roc Out
NF

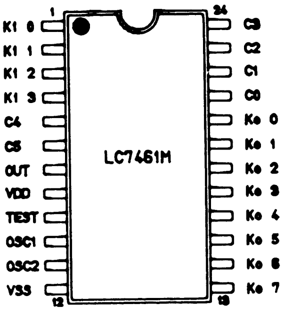
IC601: TA8207K : (POWER AMP)
IC602 (TURBO AMP)


VCC
ELECTRICAL POWER
12
3
1 BS1
2 OUT1
IN-1 5
IF-1 6
30Ω
CM-1
20KΩ
RIPPLE FILTEW 4
BIAS
IN-2 7
IN-2 8
30KΩ
CM2
20KΩ
10 OUT2
11 BS2
9 GND

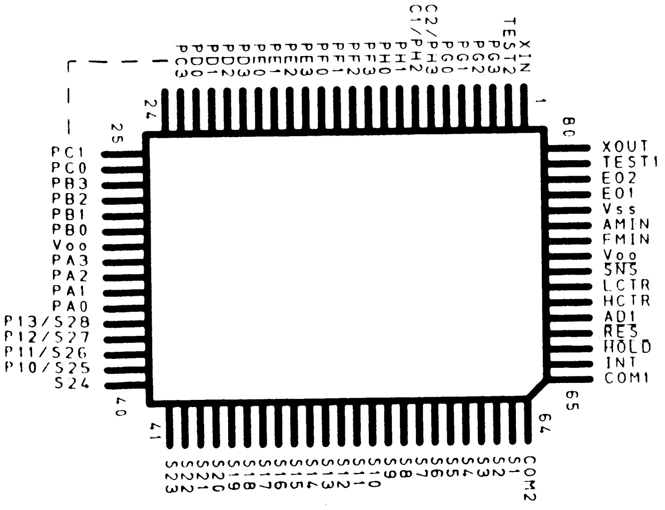
• LC7821 (FUNCTION IC) : IC401


L1
L2
L3
L4
LCOM1
L5
L6
LCOM2
L7
L8
LCOM3
VDD
Vss
VEE
RES
S
R1
R2
R3
R4
RCOM1
R5
R6
RCOM2
R7
R8
RCOM3
LEVEL SHIFTER
LATCH
SHIFT REGISTER
CONTROL
DI
CL
CE

LC7461M: REMOTE CONTROL

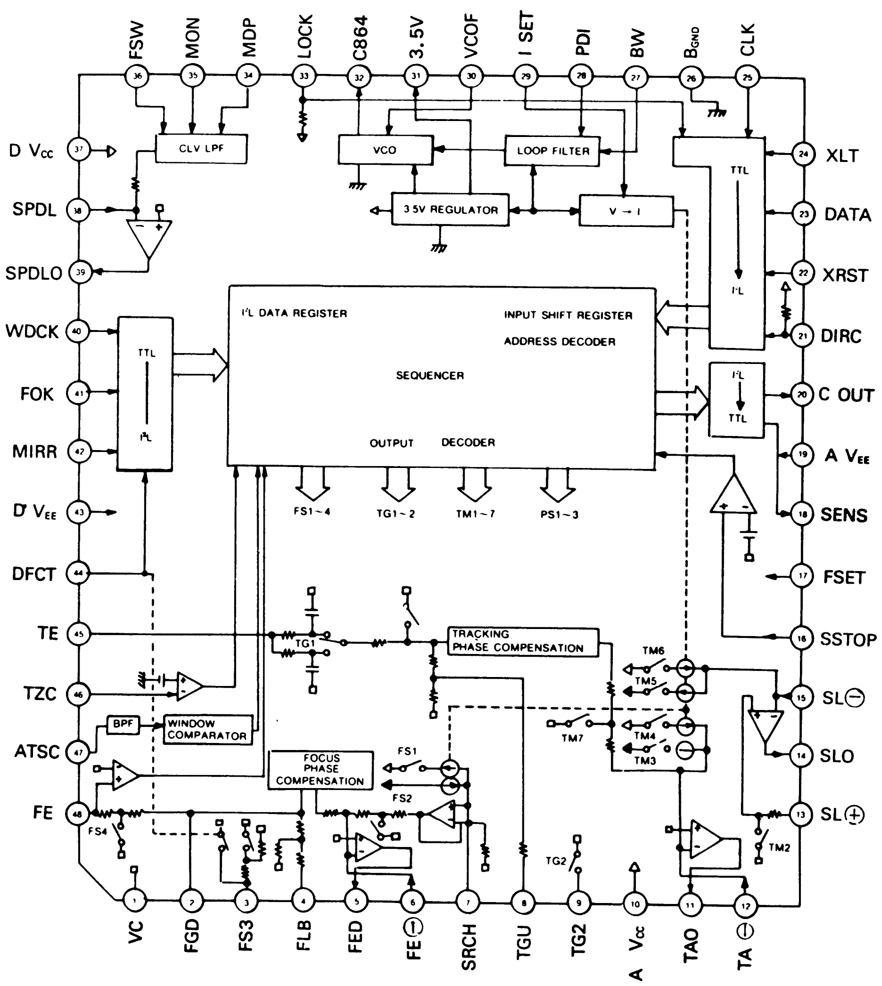

1
24
K1 0
K1 1
K1 2
K1 3
C4
C5
OUT
VDD
TEST
OSC1
OSC2
VSS
12
13
C3
C2
C1
C0
Ko 0
Ko 1
Ko 2
Ko 3
Ko 4
Ko 5
Ko 6
Ko 7
LC7461M

LC7237-8397 (DTS-MICOM) : IC901

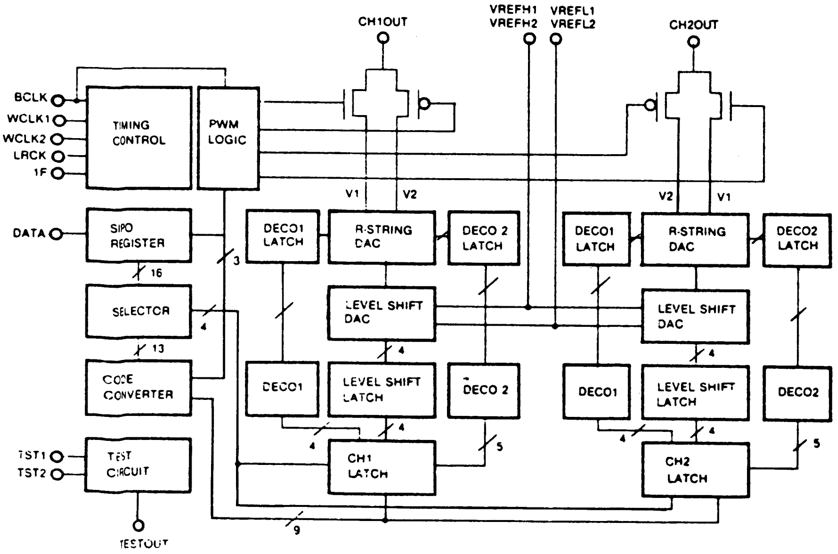

PC3
PD0
PD1
PD2
PD3
PE0
PE1
PE2
PE3
PF0
PF1
PF2
PF3
PH0
PH1
DAC1/PH2
DAC2/PH3
PG0
PG1
PG2
PG3
TEST2
XIN
24
1
25
80
PC1
PC0
PB3
PB2
PB1
PB0
Voo
PA3
PA2
PA1
PA0
P13/S28
P12/S27
P11/S26
P10/S25
S24
XOUT
TEST1
EO2
EO1
Vss
AMIN
FMIN
Voo
SNS
LCTR
HCTR
AD1
RES
HOLD
INT
COM1
40
41
65
64
S23
S22
S21
S20
S19
S18
S17
S16
S15
S14
S13
S12
S11
S10
S9
S8
S7
S6
S5
S4
S3
S2
S1
COM2

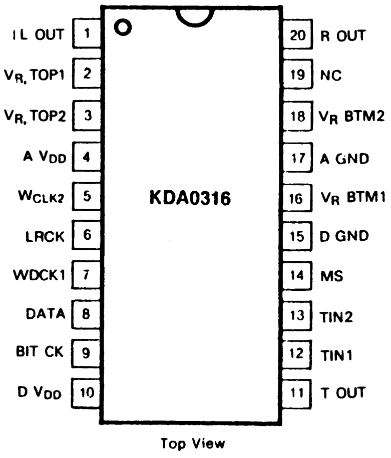
2) CD section

- KA8309 (SERVO SIGNAL PROCESSOR) : IC8309

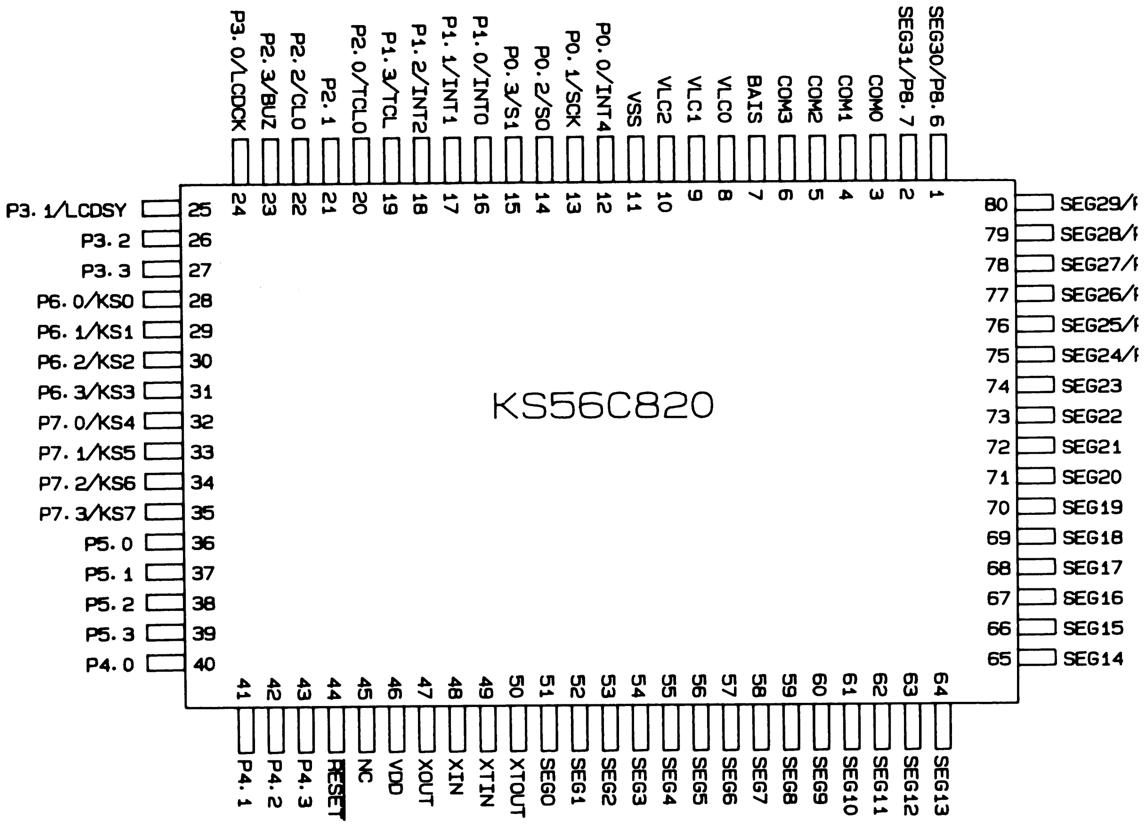

FSW 36
MON 35
MDP 34
LOCK 33
C864 32
3.5V 31
VCOF 30
I SET 29
PDI 28
BW 27
B GND 26
CLK 25
XLT 24
DATA 23
XRST 22
DIRC 21
C OUT 20
A VEE 19
SENS 18
FSET 17
SSTOP 16
SL⊖ 15
SLO 14
SL⊕ 13
TA ⊖ 12
TAO 11
A Vcc 10
TG2 9
TGU 8
SRCH 7
FE ⊖ 6
FED 5
FLB 4
FS3 3
FGD 2
VC 1
D Vcc 37
SPDL 38
SPDLO 39
WDCK 40
FOK 41
MIRR 42
D VEE 43
DFCT 44
TE 45
TZC 46
ATSC 47
FE 48
CLV LPF
VCO
LOOP FILTER
3.5V REGULATOR
V → I
TTL
I²L
I²L DATA REGISTER
INPUT SHIFT REGISTER
ADDRESS DECODER
SEQUENCER
OUTPUT DECODER
FS1~4
TG1~2
TM1~7
PS1~3
TRACKING PHASE COMPENSATION
TG1
TG2
TM2
TM3
TM4
TM5
TM6
TM7
BPF
WINDOW COMPARATOR
FOCUS PHASE COMPENSATION
FS1
FS2
FS4

- KDA0316LD (D/A CONVERTOR) : IC0316


BCLK
WCLK1
WCLK2
LRCK
1F
TIMING CONTROL
PWM LOGIC
DATA
SIPO REGISTER
16
SELECTOR
13
CODE CONVERTER
TST1
TST2
TEST CIRCUIT
TESTOUT
CH1OUT
VREFH1 VREFH2
VREFL1 VREFL2
CH2OUT
V1
V2
DECO1 LATCH
R-STRING DAC
DECO 2 LATCH
DECO2 LATCH
LEVEL SHIFT DAC
DECO1
LEVEL SHIFT LATCH
DECO 2
DECO2
CH1 LATCH
CH2 LATCH
3
4
5
9

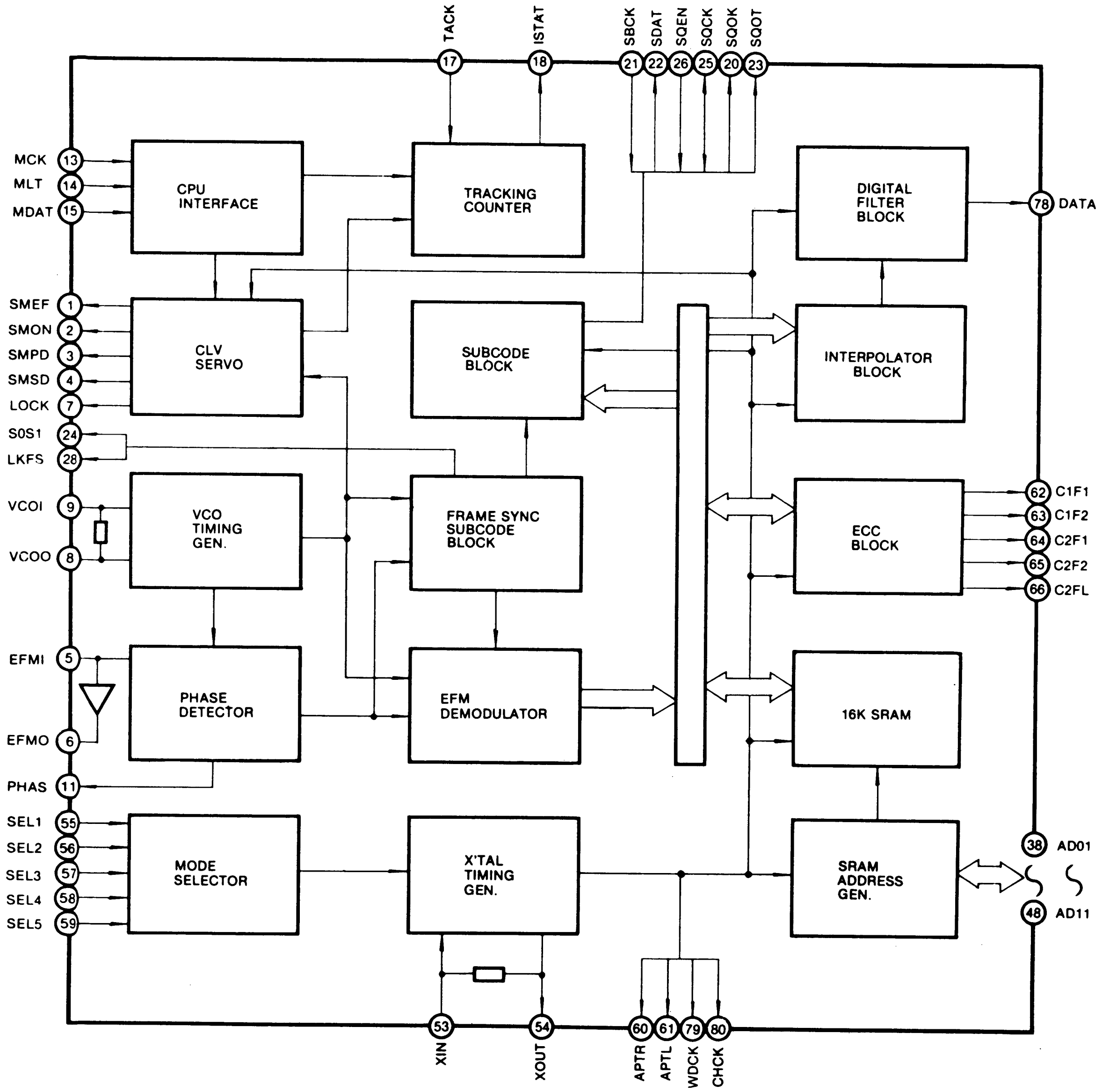

1 IL OUT
2 VR, TOP1
3 VR, TOP2
4 A VDD
5 WCLK2
6 LRCK
7 WDCK1
8 DATA
9 BIT CK
10 D VDD
20 R OUT
19 NC
18 VR BTM2
17 A GND
16 VR BTM1
15 D GND
14 MS
13 TIN2
12 TIN1
11 T OUT
KDA0316
Top View

- KS56C820 (MICOM) : IC7530

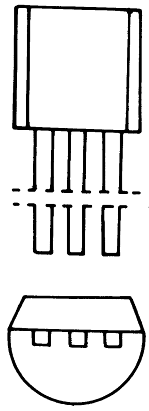

KS56C820
1 SEG30/P8.6
2 SEG31/P8.7
3 COM0
4 COM1
5 COM2
6 COM3
7 BAIS
8 VLC0
9 VLC1
10 VLC2
11 VSS
12 P0.0/INT4
13 P0.1/SCK
14 P0.2/SO
15 P0.3/S1
16 P1.0/INT0
17 P1.1/INT1
18 P1.2/INT2
19 P1.3/TCL
20 P2.0/TCLO
21 P2.1
22 P2.2/CLO
23 P2.3/BUZ
24 P3.0/LCDCK
25 P3.1/LCDSY
26 P3.2
27 P3.3
28 P6.0/KS0
29 P6.1/KS1
30 P6.2/KS2
31 P6.3/KS3
32 P7.0/KS4
33 P7.1/KS5
34 P7.2/KS6
35 P7.3/KS7
36 P5.0
37 P5.1
38 P5.2
39 P5.3
40 P4.0
41 P4.1
42 P4.2
43 P4.3
44 RESET
45 NC
46 VDD
47 XOUT
48 XIN
49 XTIN
50 XTOUT
51 SEG0
52 SEG1
53 SEG2
54 SEG3
55 SEG4
56 SEG5
57 SEG6
58 SEG7
59 SEG8
60 SEG9
61 SEG10
62 SEG11
63 SEG12
64 SEG13
65 SEG14
66 SEG15
67 SEG16
68 SEG17
69 SEG18
70 SEG19
71 SEG20
72 SEG21
73 SEG22
74 SEG23
75 SEG24/
76 SEG25/
77 SEG26/
78 SEG27/
79 SEG28/
80 SEG29/

Pin Name	Pin Description	
P1.0-P1.3	4-bit Input	Internal pull-up resistor can be specified in 4-bit unit by solftware
P2, P7	4-bit Input/Output	
P3, P6	I/O mode selectable in 1-bit unit by softwarde	
P4, P5	4-bit input/output, N-ch open drain	
P8.0-P8.7	Outputs in 1-bit unit (shared with segment outputs)	
SEG0-SEG23	Segment output for LCD display	
SEG24-SEG31	Segment output for LCD display (shared with Port 8)	
COM0-COM3	Common signal output for LCD display	
VLC0-VLC2	LCD power supply pin	
BIAS	LCD power supply control pin for 3/5V operating	
LCDCK	LCD clock output for display expansion	
LCDSY	LCD sync. clock output for display expansion	
TCL	Timer/Counter external clock input	
TCLO	Timer/Counter clock output	
INT0, 1, 2, 4	External interrupt input	
CLO	Clock output	
BUZ	2KHz clock output for buzzer	
KS0-KS7	Semi-interrupt input detecting external falling edge	
SCK, SI, SO	SCK: serial clock, SI: serial input, SO: serial output	
XIN, XOUT	Crystal/Ceramic or RC clock I/O for Main-system clock	
XTIN1 XTOUT		

- KS5990 (DIGITAL PROCESSOR) : IC5990


TACK
ISTAT
SBCK
SDAT
SQEN
SQCK
SQOK
SQOT
17
18
21
22
26
25
20
23
MCK 13
MLT 14
MDAT 15
CPU INTERFACE
TRACKING COUNTER
DIGITAL FILTER BLOCK
78 DATA
SMEF 1
SMON 2
SMPD 3
SMSD 4
LOCK 7
SOS1 24
LKFS 28
CLV SERVO
SUBCODE BLOCK
INTERPOLATOR BLOCK
VCOI 9
VCOO 8
VCO TIMING GEN.
FRAME SYNC SUBCODE BLOCK
ECC BLOCK
62 C1F1
63 C1F2
64 C2F1
65 C2F2
66 C2FL
EFMI 5
EFMO 6
PHASE DETECTOR
EFM DEMODULATOR
16K SRAM
PHAS 11
SEL1 55
SEL2 56
SEL3 57
SEL4 58
SEL5 59
MODE SELECTOR
X'TAL TIMING GEN.
SRAM ADDRESS GEN.
38 AD01
48 AD11
53 XIN
54 XOUT
60 APTR
61 APTL
79 WDCK
80 CHCK

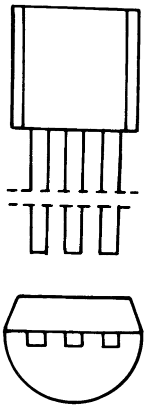
TRANSISTOR



KSR1003
KSR2003
KSR1007
KSR2007

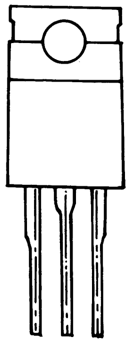
1. EMITTER 2. COLLECTOR 3. BASE

TRANSISTOR



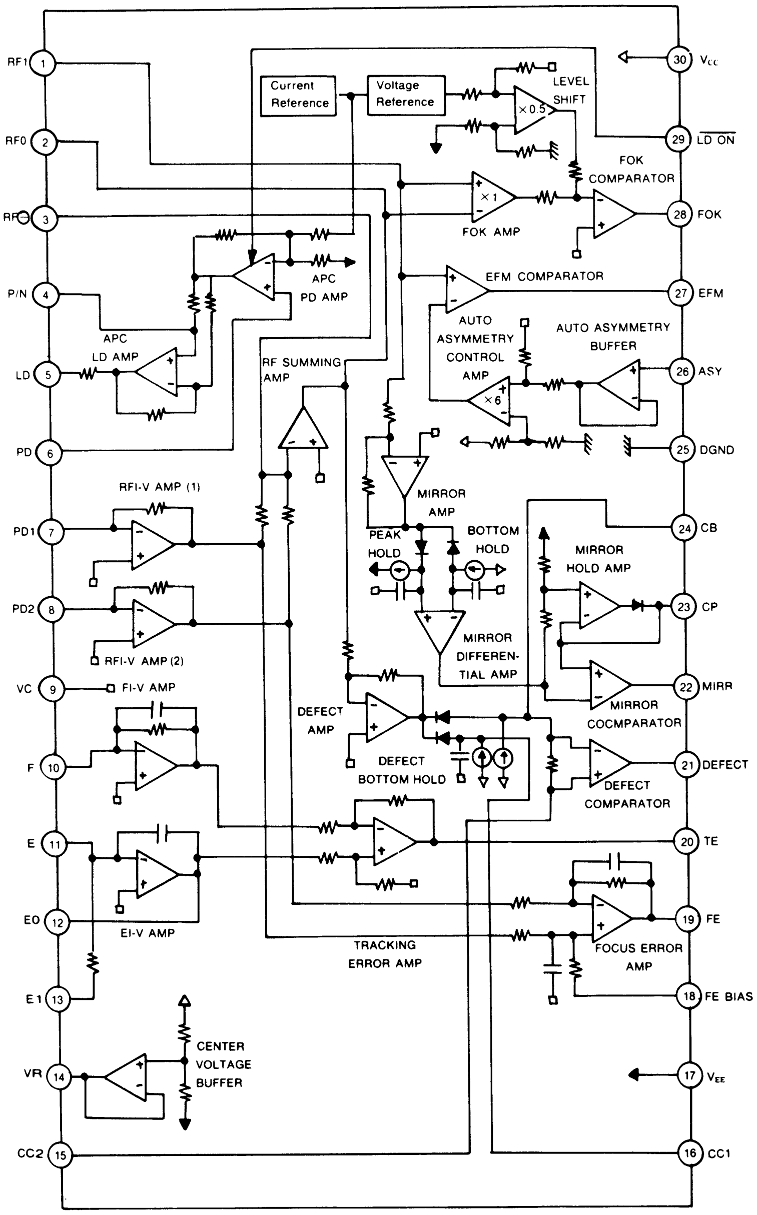
KSC945
KSB564

1. EMITTER 2. BASE 3. COLLECTOR

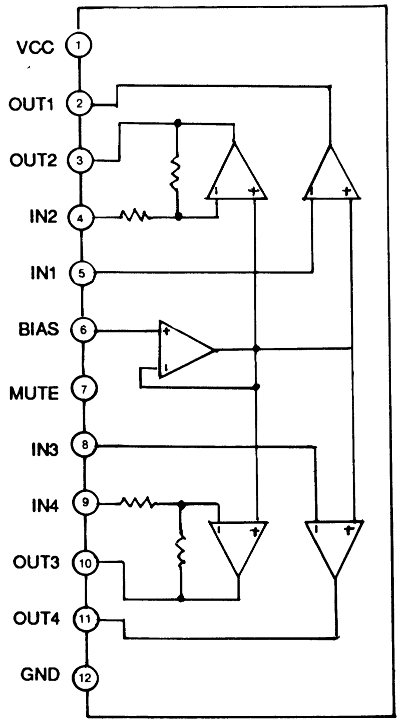


MC78M05C: IC7805 (VOLTAGE REGULATOR)
1. INPUT 2. GND 3. OUTPUT

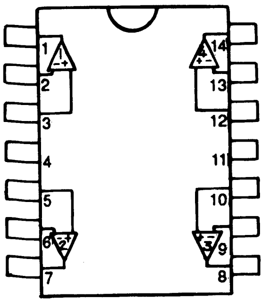
- KA9201 (RF AMP) : IC9201


RF1 1
RF0 2
RF- 3
P/N 4
LD 5
PD 6
PD1 7
PD2 8
VC 9
F 10
E 11
EO 12
E1 13
VR 14
CC2 15
CC1 16
17 VEE
18 FE BIAS
19 FE
20 TE
21 DEFECT
22 MIRR
23 CP
24 CB
25 DGND
26 ASY
27 EFM
28 FOK
29 LD ON
30 Vcc
Current Reference
Voltage Reference
LEVEL SHIFT
×0.5
FOK COMPARATOR
×1
FOK AMP
APC PD AMP
APC LD AMP
EFM COMPARATOR
AUTO ASYMMETRY CONTROL AMP
×6
AUTO ASYMMETRY BUFFER
RF SUMMING AMP
MIRROR AMP
PEAK HOLD
BOTTOM HOLD
MIRROR HOLD AMP
MIRROR DIFFEREN-TIAL AMP
RFI-V AMP (1)
RFI-V AMP (2)
FI-V AMP
DEFECT AMP
DEFECT BOTTOM HOLD
MIRROR COCMPARATOR
DEFECT COMPARATOR
EI-V AMP
TRACKING ERROR AMP
FOCUS ERROR AMP
CENTER VOLTAGE BUFFER

- KA9257 (BTL DRIVER) : IC7777, 7778


VCC 1
OUT1 2
OUT2 3
IN2 4
IN1 5
BIAS 6
MUTE 7
IN3 8
IN4 9
OUT3 10
OUT4 11
GND 12

- NJM3403AD (OP AMP) : IC3403

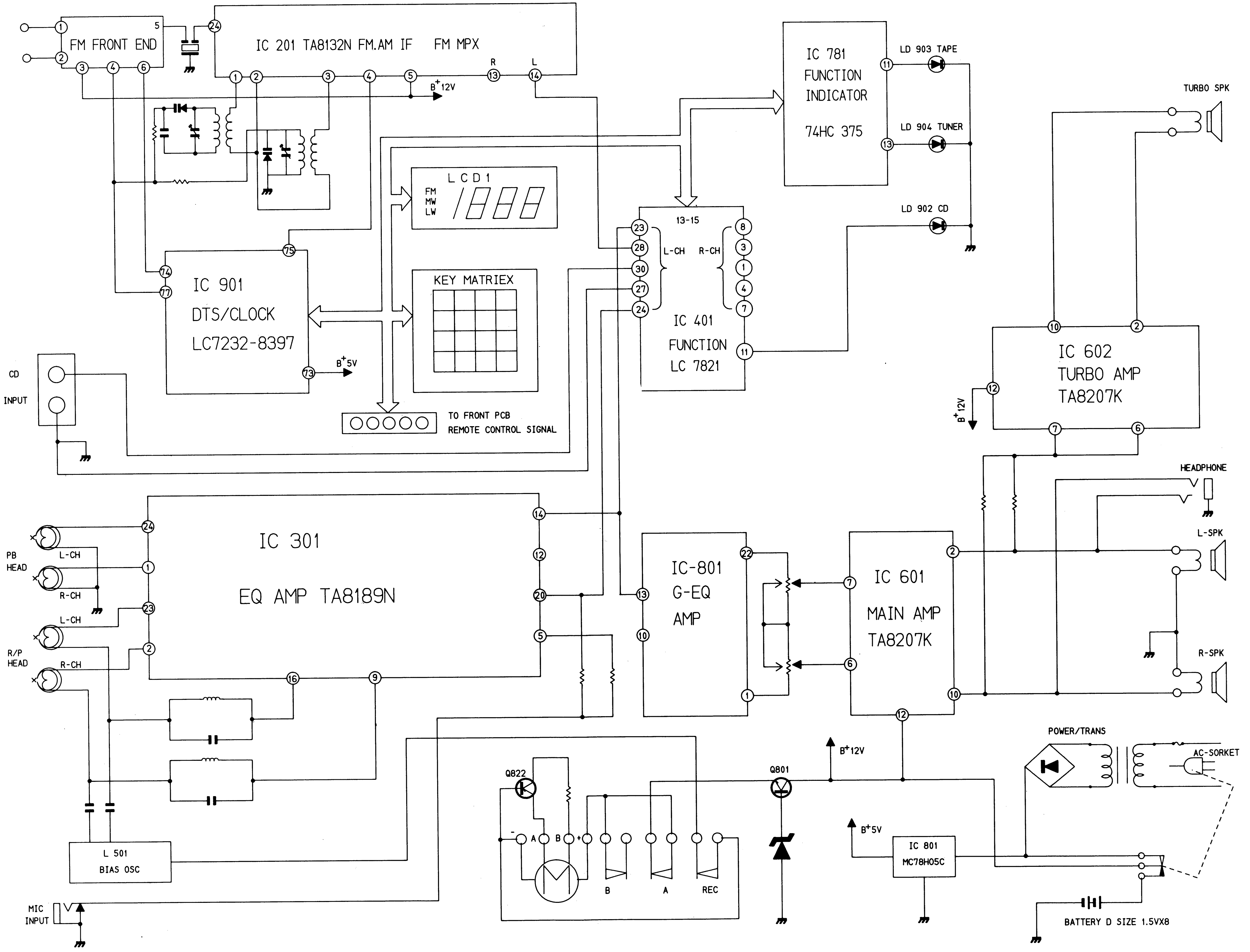

1
2
3
4
5
6
7
8
9
10
11
12
13
14

PIN FUNCTION

1. OUTPUT 1
2. - INPUT 1
3. + INPUT 1
4. V+
5. + INPUT 2
6. - INPUT
7. OUTPUT 2
8. OUTPUT 3
9. - INPUT 3
10. + INPUT
11. V
12. + INPUT 4
13. - INPUT 4
14. OUTPUT 4

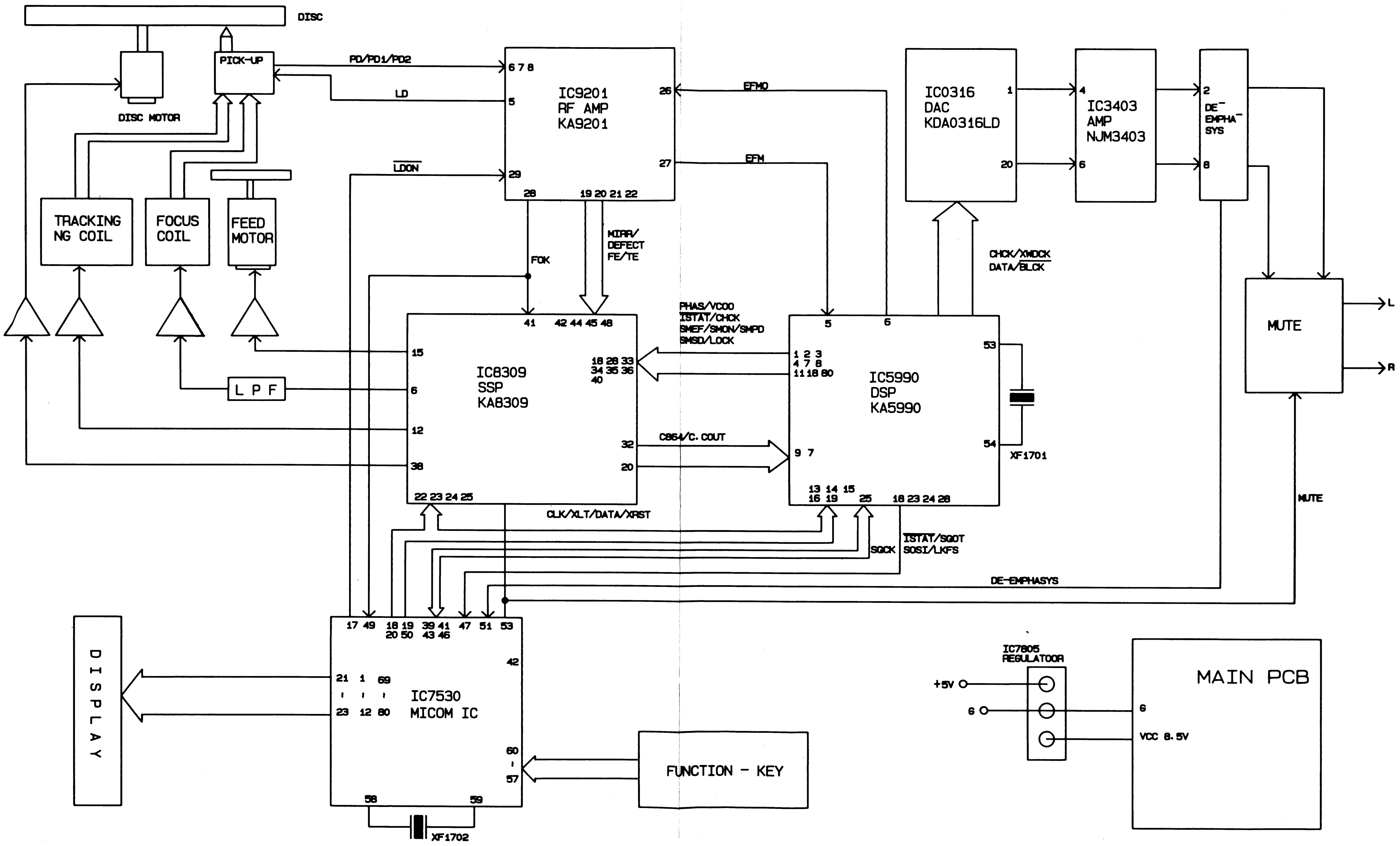
BLOCK DIAGRAM

1) RADIO/CASSETTE SECTION


FM FRONT END
IC 201 TA8132N FM.AM IF FM MPX
R
L
B+12V
IC 781
FUNCTION
INDICATOR
74HC 375
LD 903 TAPE
LD 904 TUNER
LD 902 CD
TURBO SPK
LCD1
FM
MW
LW
KEY MATRIEX
IC 901
DTS/CLOCK
LC7232-8397
B+5V
TO FRONT PCB
REMOTE CONTROL SIGNAL
13-15
L-CH
R-CH
IC 401
FUNCTION
LC 7821
IC 602
TURBO AMP
TA8207K
B+12V
CD
INPUT
HEADPHONE
L-SPK
R-SPK
PB
HEAD
L-CH
R-CH
R/P
HEAD
L-CH
R-CH
IC 301
EQ AMP TA8189N
IC-801
G-EQ
AMP
IC 601
MAIN AMP
TA8207K
L 501
BIAS OSC
Q822
Q801
B+12V
B+5V
A
B
REC
IC 801
MC78H05C
POWER/TRANS
AC-SORKET
BATTERY D SIZE 1.5VX8
MIC
INPUT

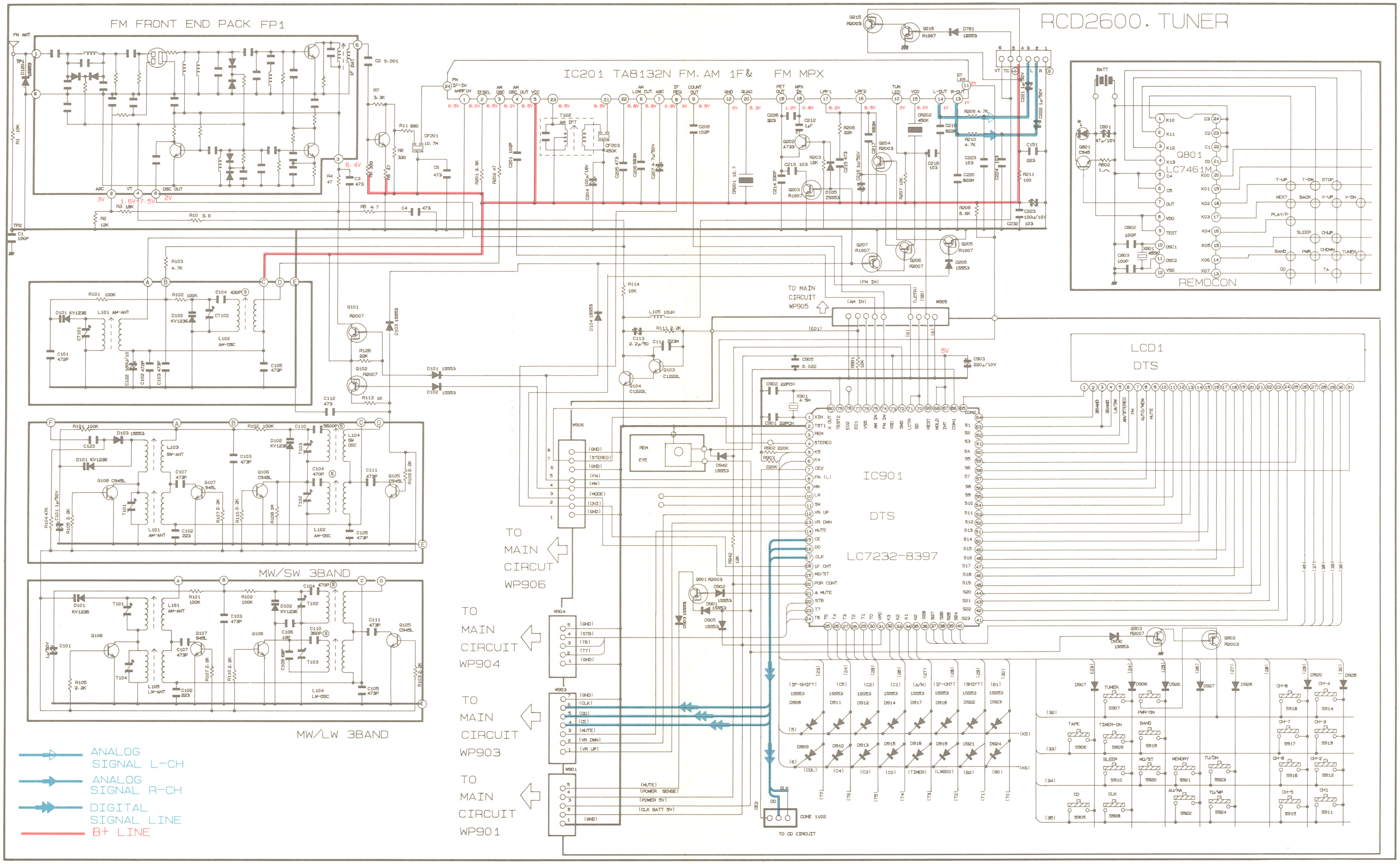
2) CD SECTION

BLOCK DIAGRAM


DISC
PICK-UP
DISC MOTOR
PD/PD1/PD2
LD
$\overline{\text{LDON}}$
6 7 8
5
29
IC9201
RF AMP
KA9201
26
27
28
19 20 21 22
EFMO
EFM
FOK
MIRR/
DEFECT
FE/TE
TRACKING
NG COIL
FOCUS
COIL
FEED
MOTOR
L P F
15
6
12
38
41
42 44 45 48
IC8309
SSP
KA8309
18 28 33
34 35 36
40
32
20
22 23 24 25
PHAS/VCOO
$\overline{\text{ISTAT}}$/CHCK
SMEF/SMON/SMPD
SMSD/LOCK
C864/C. COUT
CLK/XLT/DATA/XRST
5
6
1 2 3
4 7 8
11 18 80
IC5990
DSP
KA5990
53
54
XF1701
9 7
13 14 15
16 19
25
18 23 24 28
SQCK
$\overline{\text{ISTAT}}$/SQOT
SOSI/LKFS
IC0316
DAC
KDA0316LD
1
20
CHCK/XWDCK
DATA/$\overline{\text{BLCK}}$
IC3403
AMP
NJM3403
4
6
2
8
DE-
EMPHA-
SYS
MUTE
L
R
MUTE
DE-EMPHASYS
17 49
18 19
20 50
39 41
43 46
47
51
53
42
21 1 69
23 12 80
IC7530
MICOM IC
60
57
58
59
XF1702
D I S P L A Y
FUNCTION - KEY
IC7805
REGULATOOR
+5V
6
MAIN PCB
6
VCC 8.5V

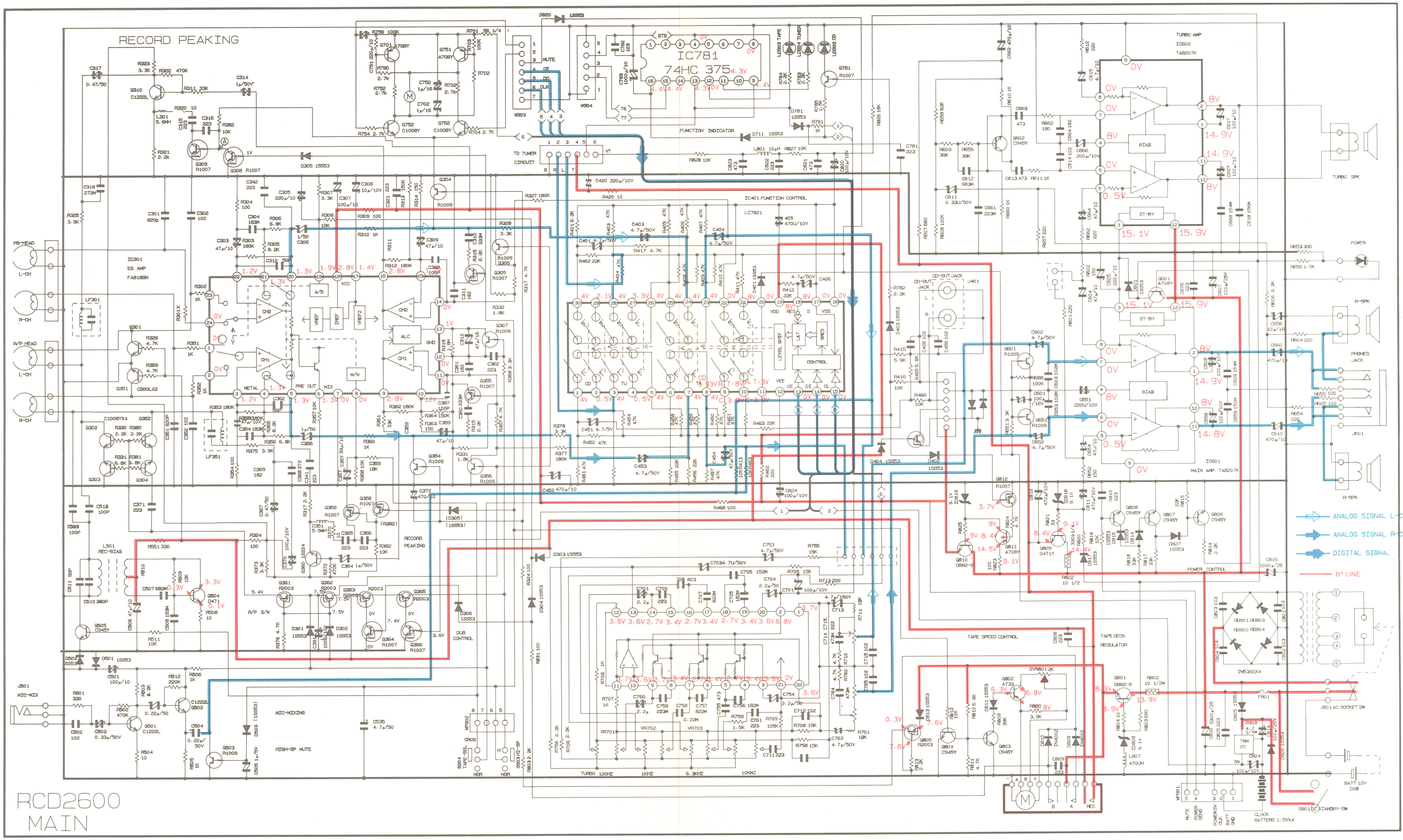
SCHEMATIC DIAGRAM

1) RADIO/CASSETTE SECTION (TUNER)



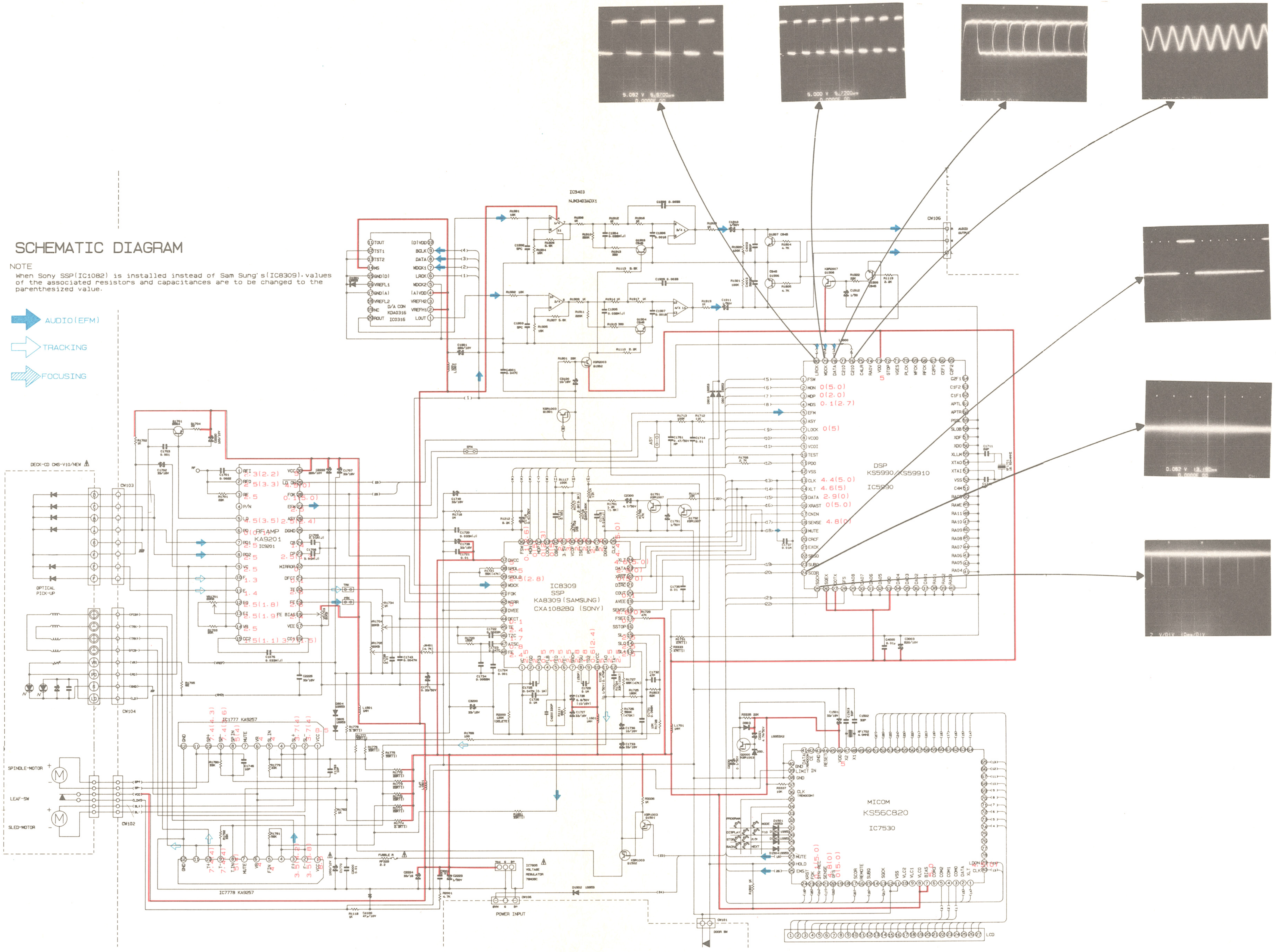
FM FRONT END PACK FP1
FM ANT
RCD2600. TUNER
IC201 TA8132N FM. AM 1F& FM MPX
Q801
LC7461M
REMOCON
BATT
T-UP
T-DW
STOP
NEXT
BACK
V-UP
V-DN
PLAY/P
SLEEP
CHUP
BAND
PWR
CHDWN
TUNER
CD
TA
TO MAIN CIRCUIT WP905
LCD1
DTS
IC901
DTS
LC7232-8397
TO MAIN CIRCUT WP906
TO MAIN CIRCUIT WP904
TO MAIN CIRCUIT WP903
TO MAIN CIRCUIT WP901
TO CD CIRCUIT
CONE 1102
MW/SW 3BAND
MW/LW 3BAND
ANALOG SIGNAL L-CH
ANALOG SIGNAL R-CH
DIGITAL SIGNAL LINE
B+ LINE

2) RADIO/CASSETTE SECTION (MAIN)


RECORD PEAKING
IC301
EQ AMP
FA8186N
PB-HEAD
L-CH
R-CH
R/P HEAD
L-CH
R-CH
LF301
LF351
L501
REC-BIAS
J501
MIC-MIX
MIC-MIXING
HIGH-SP MUTE
R/P S/W
DUB CONTROL
RECORD PEAKING
IC781
74HC 375
TO TUNER CIRCUIT
FUNCTION INDICATOR
IC401 FUNCTION CONTROL
LC7821
W903
W904
LED903 TAPE
LED904 TUNER
LED902 CD
CD-OUT JACK
J401
TURBO AMP
IC502
TA8207K
TURBO SPK
BIAS
ST-BY
POWER
R-SPK
PHONES JACK
J601
IC501
MAIN AMP TA8207K
POWER CONTROL
TAPE SPEED CONTROL
TAPE DECK REGULATOR
TURBO 100HZ
1KHZ
6.3KHZ
10KHZ
D801~D804
1N5392X4
J801 AC SOCKET SW
BATT 12V DXB
S801 STANDBY-SW
CLOCK BATTERIES 1.5VX4
MUTE
POWER SENS
POWER 5V CLK
BATT GND
REC
ANALOG SIGNAL L-CH
ANALOG SIGNAL R-CH
DIGITAL SIGNAL
B+ LINE
RCD2600
MAIN

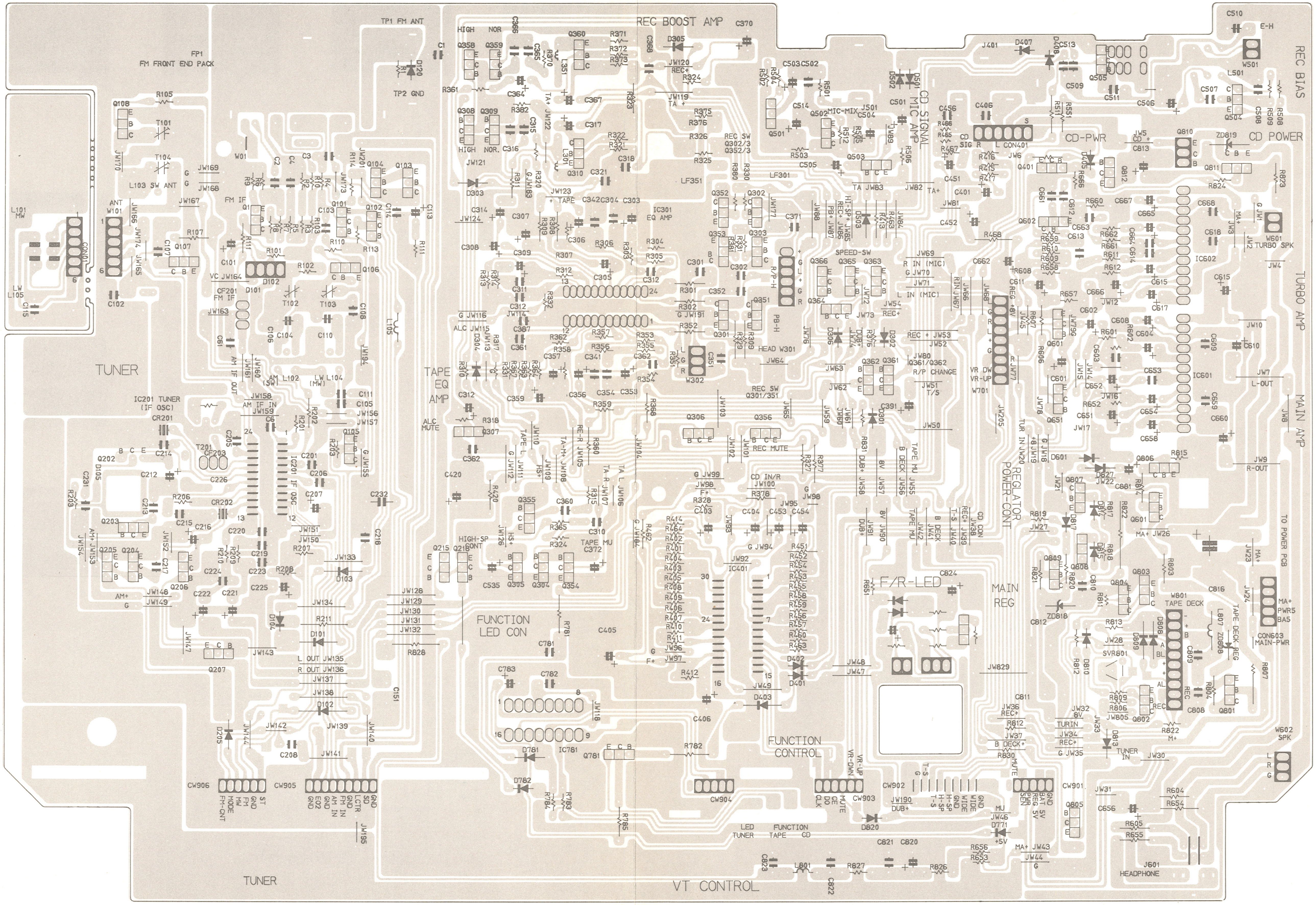
SCHEMATIC DIAGRAM

NOTE
When Sony SSP(IC1082) is installed instead of Sam Sung's(IC8309), values of the associated resistors and capacitances are to be changed to the parenthesized value.

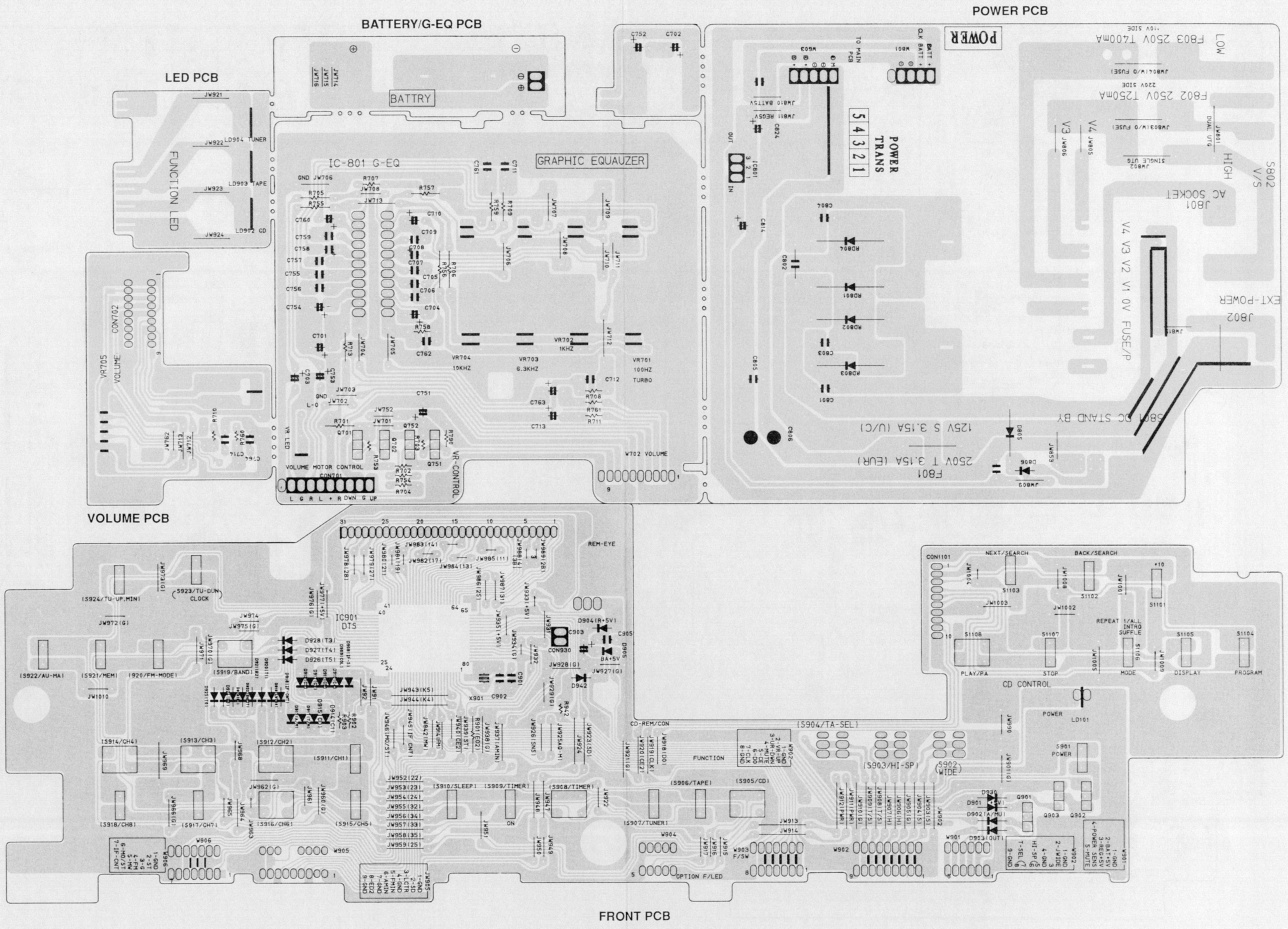

AUDIO(EFM)
TRACKING
FOCUSING
IC9403
NJM3403ADX1
D/A CON
KDA0316
IC0316
CN106
RF AMP
KA9201
IC9201
IC8309
SSP
KA8309(SAMSUNG)
CXA1082BQ (SONY)
DSP
KS5990/KS59910
IC5990
MICOM
KS56C820
IC7530
IC1777 KA9257
IC7778 KA9257
DECK-CD CMS-V10/NEW
CN103
CN104
CN102
OPTICAL PICK-UP
SPINDLE-MOTOR
LEAF-SW
SLED-MOTOR
IC7805
VOLTAGE REGULATOR
7805C
POWER INPUT
CN101
DOOR SW
LCD

PCB PATTERN & MARKING DIAGRAM

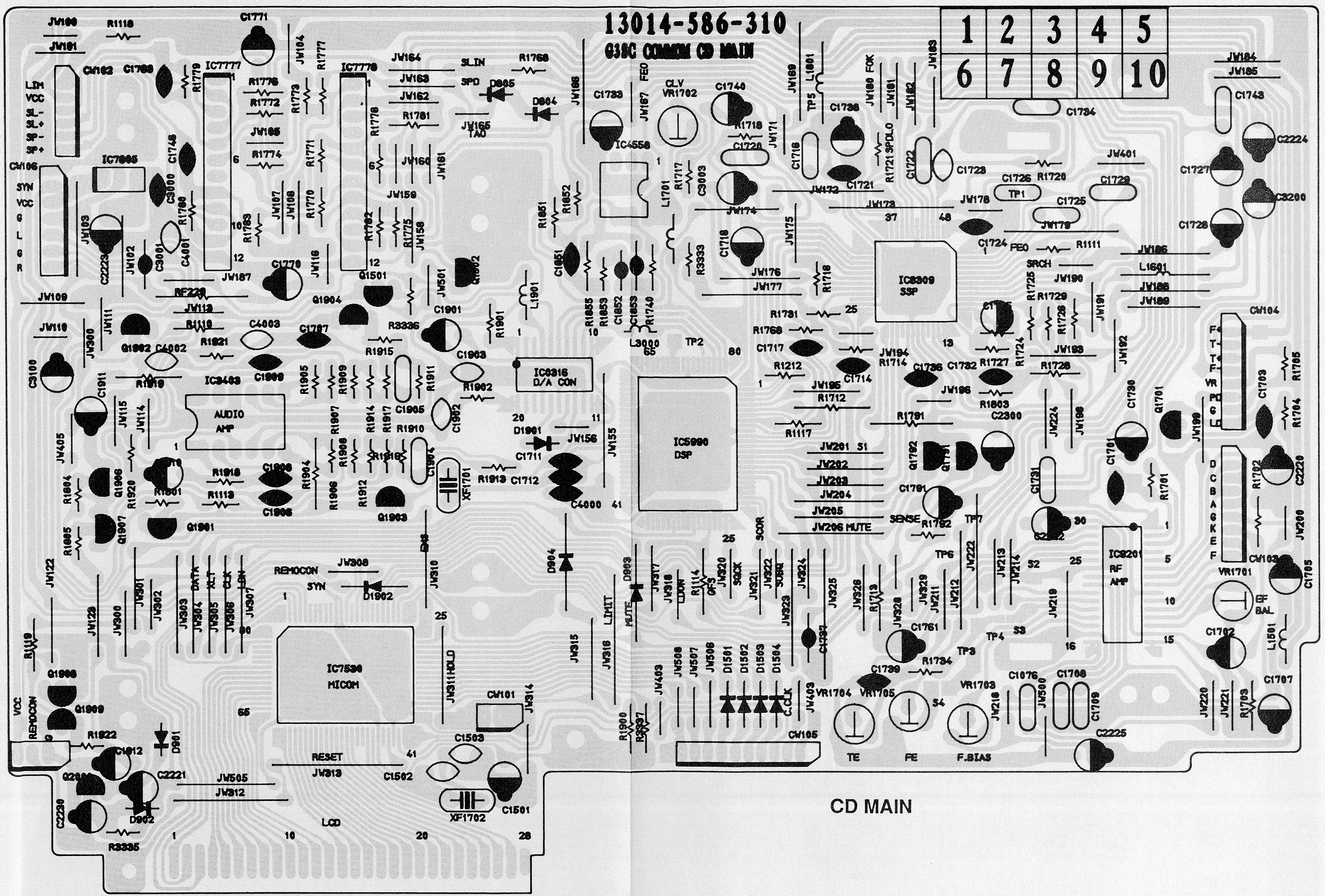
1) RADIO/CASSETTE SECTION (MAIN) : PATTERN SIDE


TP1 FM ANT
TP2 GND
FP1
FM FRONT END PACK
REC BOOST AMP
REC BIAS
CD SIGNAL
MIC AMP
CD-PWR
CD POWER
TURBO SPK
TURBO AMP
MAIN AMP
L-OUT
R-OUT
TO POWER PCB
CON603
MAIN-PWR
TUNER
IC201 TUNER
(IF OSC)
TAPE
EQ
AMP
IC301
EQ AMP
ALC
MUTE
HEAD W301
SPEED-SW
REC SW
Q301/351
REC MUTE
R/P CHANGE
FUNCTION
LED CON
F/R-LED
MAIN
REG
REGLATOR
POWER-CONT
TAPE DECK
HEADPHONE
J601
W602
SPK
FUNCTION
CONTROL
VT CONTROL
LED
FUNCTION
TUNER
TAPE
CD
CW906
CW905
CW904
CW903
CW902
CW901
IC401
IC601
IC602
IC781

2) RADIO/CASSETTE SECTION (SUB) : PATTERN SIDE


POWER PCB
BATTERY/G-EQ PCB
LED PCB
FUNCTION LED
BATTRY
IC-801 G-EQ
GRAPHIC EQUAUZER
POWER TRANS
POWER
AC SOCKET
J801
S802
V/S
HIGH
LOW
EXT-POWER
J802
F801
250V T 3.15A (EUR)
125V S 3.15A (U/C)
F802 250V T250mA
F803 250V T400mA
S801 DC STAND BY
VR705 VOLUME
CON702
VOLUME PCB
VR-CONTROL
VOLUME MOTOR CONTROL
CON701
W702 VOLUME
VR704 10KHZ
VR703 6.3KHZ
VR702 1KHZ
VR701 100HZ
TURBO
IC901 DTS
REM-EYE
CON930
CD CONTROL
CON1101
NEXT/SEARCH
BACK/SEARCH
PLAY/PA
STOP
MODE
DISPLAY
PROGRAM
REPEAT 1/ALL
INTRO
SUFFLE
POWER
LD101
FUNCTION
CD-REM/CON
OPTION F/LED
FRONT PCB

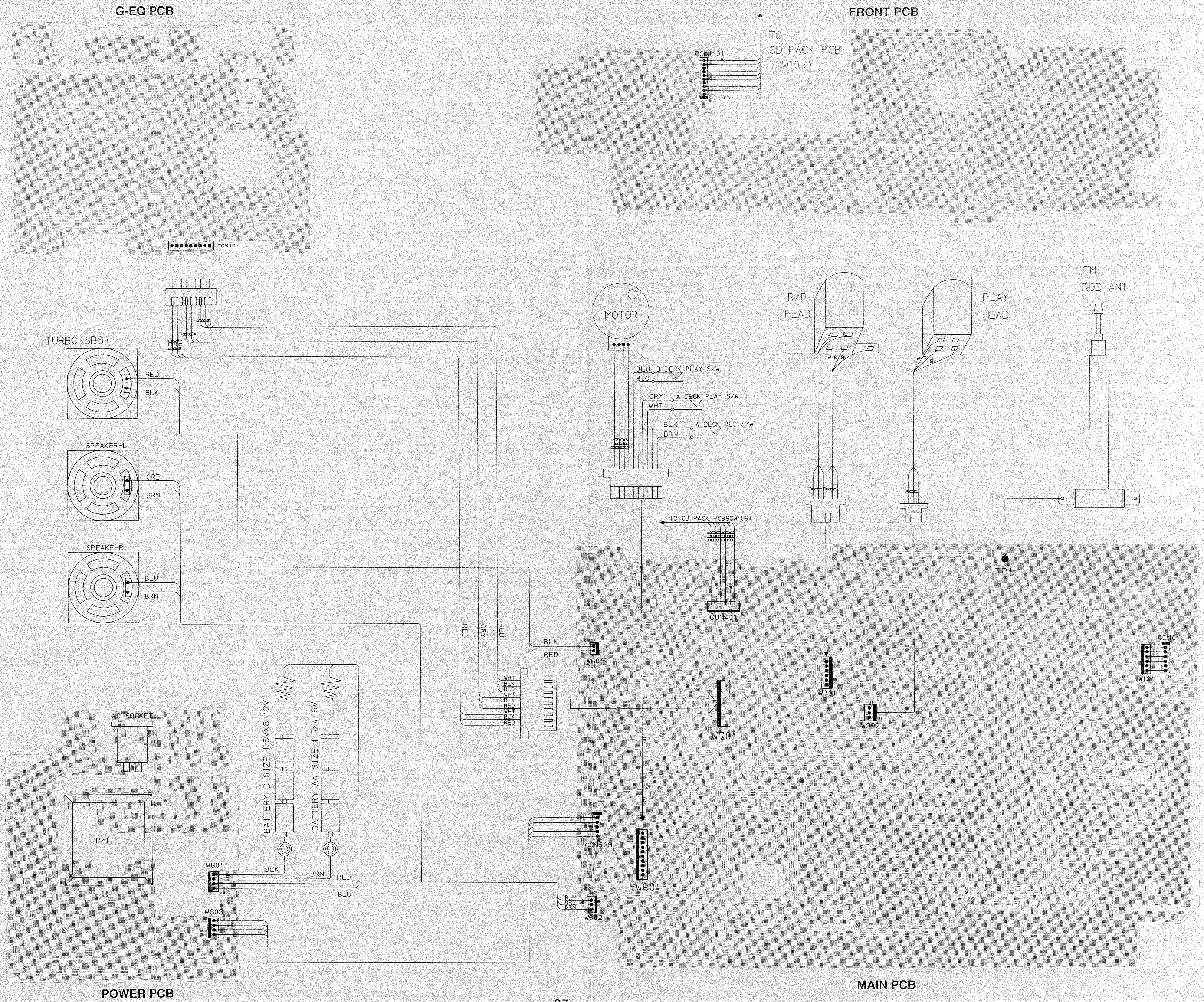
3) CD SECTION (PARTS SIDE)


13014-586-310
G38C COMMON CD MAIN
1 2 3 4 5
6 7 8 9 10
IC7777
IC7778
IC7665
IC4558
IC8309 SSP
IC8316 D/A CON
IC3463 AUDIO AMP
IC5990 DSP
IC7530 MICOM
IC8201 RF AMP
CLV VR1702
VR1701 EF BAL
VR1704
VR1705
VR1703
TE
FE
F.BIAS
XF1701
XF1702
CW101
CW102
CW103
CW104
CW105
CW106
LIM
VCC
SL-
SL+
SP-
SP+
SYN
REMOCON
RESET
LCD
SLIN
SPD
TAO
FEO
FOK
SPDLO
SRCH
SENSE
MUTE
LIMIT
SQCK
SCOR
SUBQ
C.CLK
DATA
XLT
CLK
HOLD
TP1
TP2
TP3
TP4
TP5
TP6
TP7
S1
S2
S3
S4

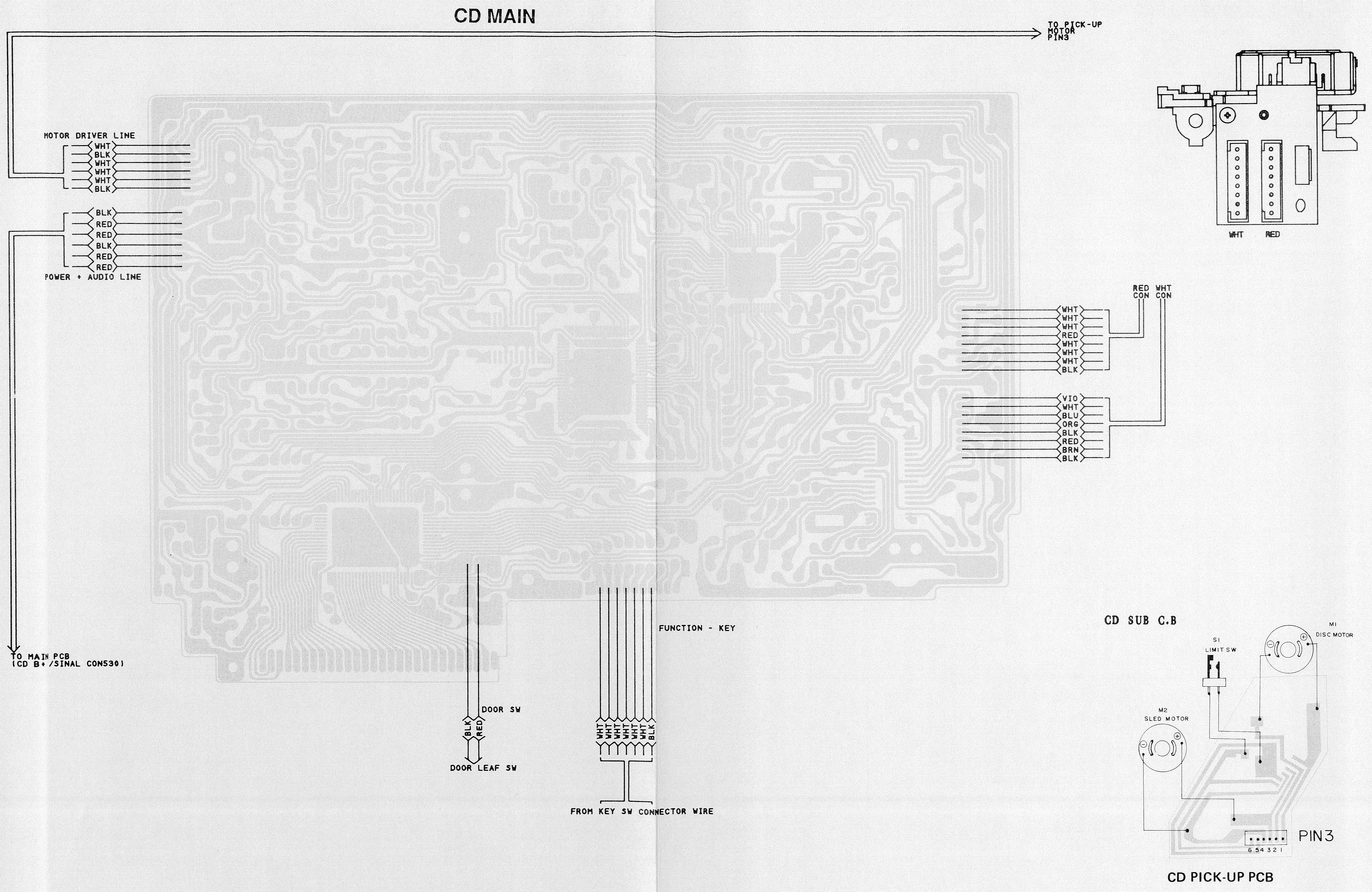
CD MAIN

WIRING DIAGRAM

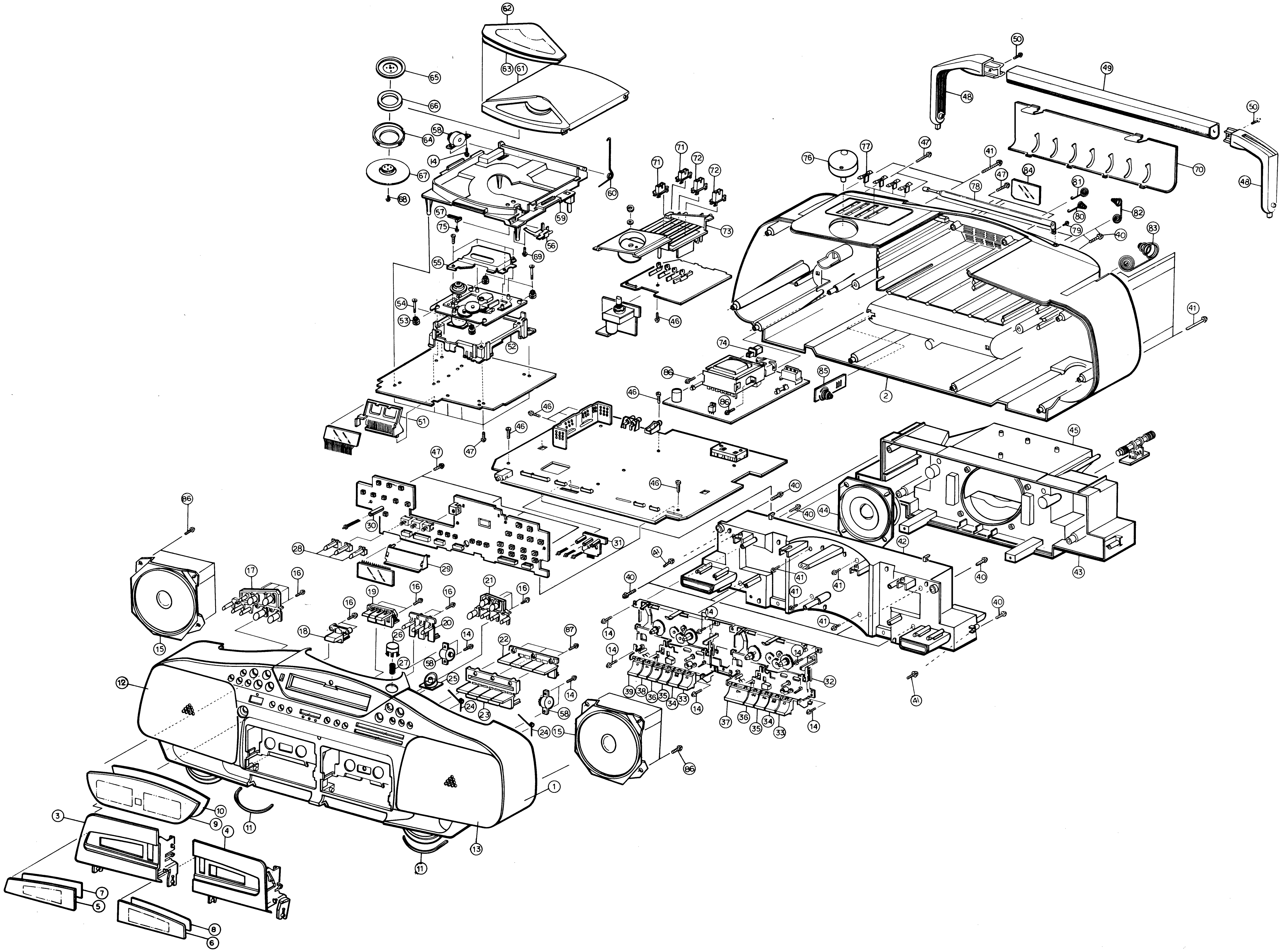
1) RADIO/CASSETTE SECTION


G-EQ PCB
CON701
FRONT PCB
CON1101
BLK
TO
CD PACK PCB
(CW105)
TURBO(SBS)
RED
BLK
SPEAKER-L
ORE
BRN
SPEAKE-R
BLU
BRN
RED
GRY
RED
WHT
BLK
RED
WHT
BLK
RED
WHT
BLK
RED
MOTOR
BLK
BRN
RED
ORG
BLU
B DECK PLAY S/W
BIO
GRY
A DECK PLAY S/W
WHT
BLK
A DECK REC S/W
BRN
R/P
HEAD
PLAY
HEAD
FM
ROD ANT
TO CD PACK PCB9CW106)
TP1
CON401
BLK
RED
W601
W701
W301
W302
CON01
W101
AC SOCKET
P/T
BATTERY D SIZE 1.5VX8 12V
BATTERY AA SIZE 1.5X4 6V
W801
BLK
BRN
RED
BLU
W603
CON603
W801
BLU
W602
POWER PCB
MAIN PCB

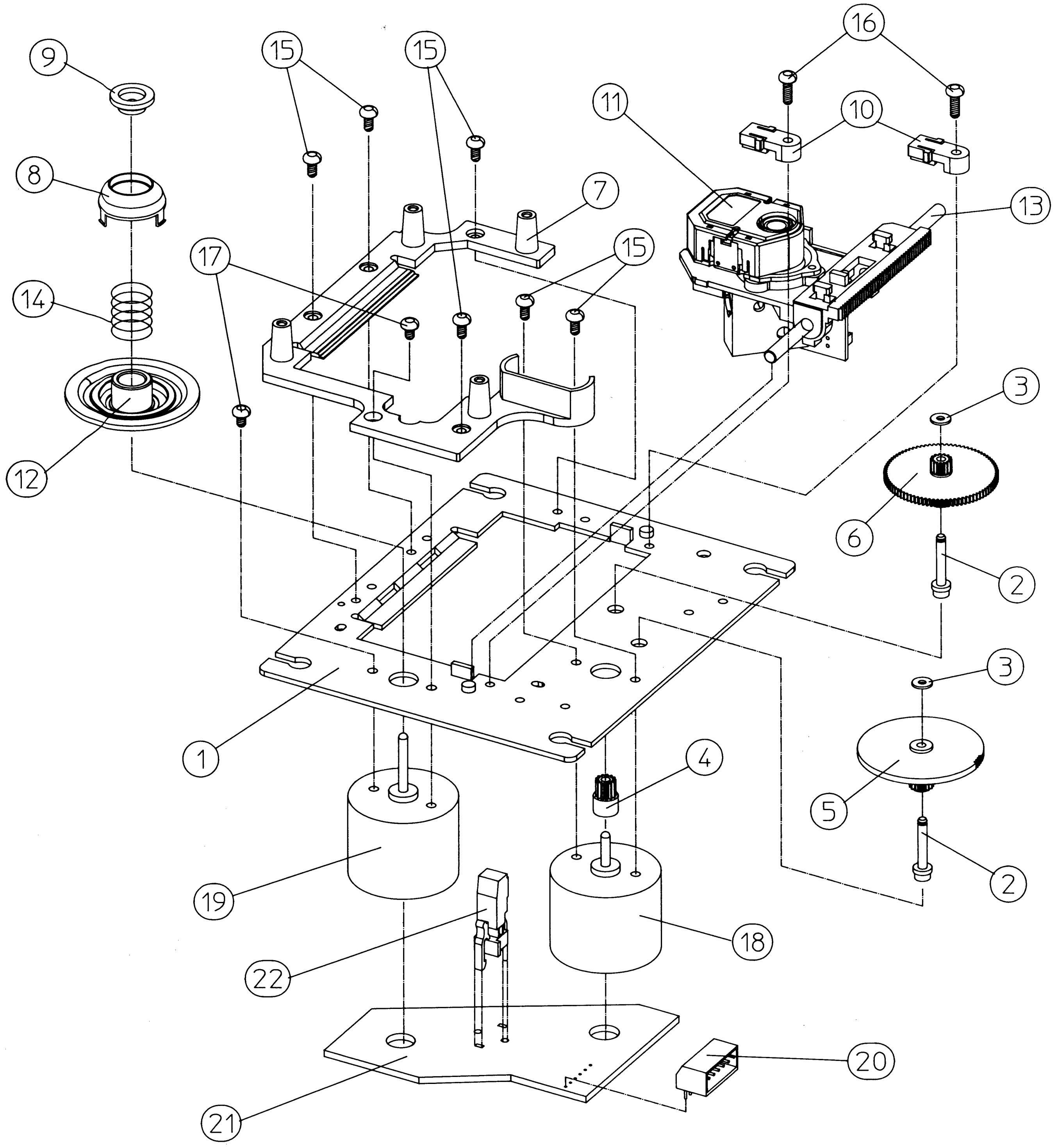
2) CD SECTION


CD MAIN
TO PICK-UP MOTOR PIN3
MOTOR DRIVER LINE
WHT
BLK
WHT
WHT
WHT
BLK
BLK
RED
RED
BLK
RED
RED
POWER + AUDIO LINE
TO MAIN PCB (CD B+/SINAL CON530)
WHT
RED
RED CON
WHT CON
WHT
WHT
WHT
RED
WHT
WHT
WHT
BLK
VIO
WHT
BLU
ORG
BLK
RED
BRN
BLK
DOOR SW
BLK
RED
DOOR LEAF SW
FUNCTION - KEY
WHT
WHT
WHT
WHT
WHT
WHT
BLK
FROM KEY SW CONNECTOR WIRE
CD SUB C.B
S1
LIMIT SW
M1
DISC MOTOR
M2
SLED MOTOR
PIN3
6 5 4 3 2 1
CD PICK-UP PCB

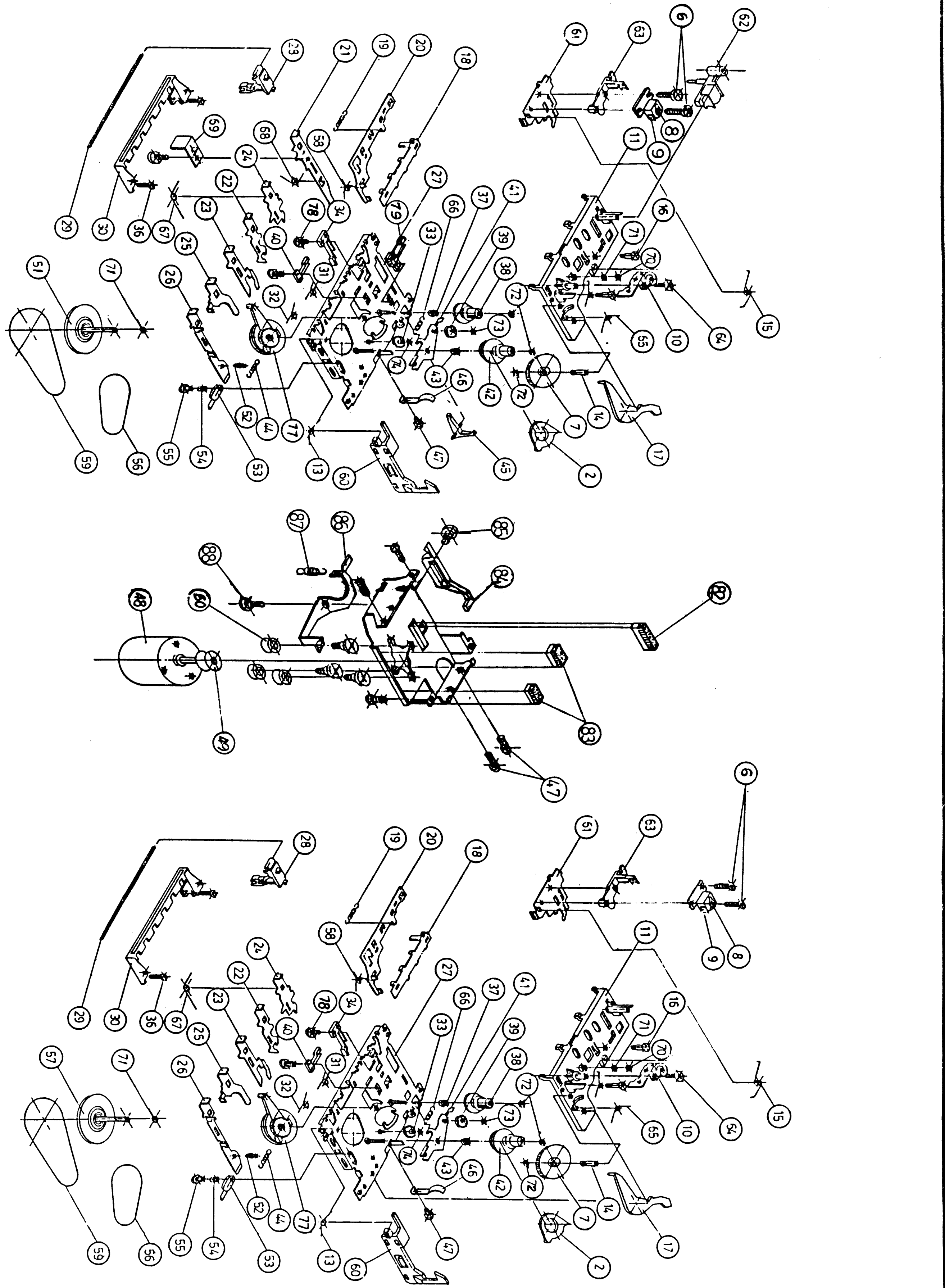
■ EXPLODED VIEW


62
65
63
61
66
58
64
14
67
68
60
59
57
75
56
55
69
54
53
52
51
47
71
71
72
72
73
46
50
49
48
50
48
70
76
77
47
41
47
84
81
78
80
82
79
40
83
41
2
74
86
85
46
86
46
46
45
47
46
30
31
28
29
A1
40
40
44
42
43
41
41
41
41
40
40
86
17
16
16
19
16
21
16
20
18
26
14
27
58
15
22
87
25
12
24
23
14
58
24
15
14
14
39
38
36
35
34
33
14
32
37
36
35
34
33
14
A1
86
1
10
9
11
3
4
13
11
7
5
8
6

■ CD DECK EXPLODED VIEW (CMS-V10)


9
15
15
16
11
10
8
7
13
17
15
14
12
3
6
2
3
1
4
5
2
19
18
22
20
21

■ CASSETTE DECK EXPLODED VIEW (ADR1523FW)



CASSETTE DECK PARTS LIST

*** DECK ASS'Y : ADR1523FW (14929-104-950)**

NO.	CODE NO.	DESCRIPTION	SPECIFICATION	Q'TY
2	10000-607-102	SENSOR REEL	1153-00080AA	2
7	10000-607-107	GEAR CAM	11128-0391AA	2
9	10000-523-008	RP HEAD	MS 15R-AA2NI	2
10	10000-607-110	ASS'Y PINCH ARM	ADR15-006	2
17	10000-607-117	ARM SENSOR	11102-00530AA	2
28	10000-607-128	KEY KNOB	11133-00010AA	12
33	10000-607-133	GEAR FF	11128-00080AA	2
34	10000-607-134	SW LEAF (MAIN)	MSW2526GNBKCV	2
38	10000-607-138	REEL S ASS'Y	ADR15-001	2
39	10000-607-139	GEAR ROLLER-T	11128-00050AA	2
40	10000-607-140	SW LEAF (REC)	LSA1119EN	1
42	10000-607-142	REEL T ASS'Y	ADR15-002	2
45	10000-607-145	LEVER REC SAFETY	11134-01000AA	1
46	10000-607-146	SP PACK	51299-02506XC	2
48	10000-502-011	MOTOR	EG530 YD9B	1
49	10000-607-149	PULLEY Y MOTOR	11145-00450AA	1
51	10000-607-151	FLY WHEEL ASS'Y-S	ADR15-003	1
53	10000-607-153	CAM PAUSE LOCK	11116-00010AA	2
55	10000-607-155	CAP	11117-00020AA	2
56	10000-607-156	BELT SUB	34.7 ø x 1.0t	2
57	10000-607-157	FLY WHEEL ASS'Y-D	ADR15-004	1
59	10000-607-159	BELT MAIN	59.7 ø x 1.0t	2
60	10000-607-160	LEVER EJECT (F)	11134-01220AA	2
62	10000-607-162	ARM MAGNETIC	11102-00520AA	1
63	10000-607-163	BASE HEAD-M	11105-00030AA	2
65	10000-607-165	SP PAUSE SAFETY	51263-02026	2
77	10000-607-177	ARM F.R ASS'Y	ADR15-005	2
84	10000-607-184	LEVER RELEASE	11134-01240AA	1
86	10000-607-186	LEVER SYNCRO	11134-01280AA	1

* Parts which are not described in the DECK list are not serviceable.
If you need any other parts except those described, apply DECK ass'y.

■ CD DECK PARTS LIST

*** COMPACT DISC DECK ASS'Y (CMS-V10) : 14929-407-010**

NO.	CODE NO.	DESCRIPTION	SPECIFICATION	Q'TY
4	15214-510-510	GEAR-P/U (A)	P.O.M (DURACON KT-20)	1
5	15214-510-610	GEAR-P/U (B)	NYLON 12	1
6	15214-510-710	GEAR-P/U (C)	P.O.M (DURACON KT-20)	1
10	16033-505-210	HOLDER-SHAFT	ABS 94HB	2
11	14239-101-610	SAMSUNG OPTICAL HEAD	LASER PICKUP SOH90T4	1
13	15104-503-410	SHAFT-P/U	SUS 420J2 Ø3	1
16	17008-120-063	SCREW-PH	+M2 x 6 FE FZB	2
18	14769-057-250	MOTOR-FEED	RF-310T (SHAFT 10.9)	1
22	13564-601-100	LEAF-SW.	MSW-1731CVC	1

* Parts which are not described in the CD DECK list are not serviceable.
If you need any other parts except those described, apply CD DECK ass'y.

■ PARTS LIST

1) RADIO/CASSETTE SECTION

SYMBOL NO.	CODE NO.	DESCRIPTION	SPECIFICATION	QTY	NEW	REMARK
IC201	12119-101-370	IC IF + MPX	TA8132N	1		
IC301	12109-401-840	IC-PRE/REC	TA8189N	1		
IC401	12109-401-270	IC-FUNCTION	LC7821	1		
IC601, 602	12119-101-290	IC-POWER AMP	TA8207K	2		
IC781	12109-401-900	IC-HCT	LC74HC375/TC74HC375	1		
IC801 G/EQ	12119-201-600	IC-GRAPHIC EQ	KA-22233	1		
IC901	12109-401-340	DTS-MICOM	LC7232-8397	1	★	
IC801	12119-601-170	IC-VOLT REGULATOR	MC78M05	1		
L101	12513-203-357	COIL-ANT ASSY	235UH AR 8 x 80 25MM	1		2BAND
L101, L105	12514-274-517	COIL-ANT ASSY	240UH/25MH AR 8 x 100 25MM	1		LBAND
FP1	14519-815-010	FM FRONT END PACK	CEA9 735H	1		
SVR801	11249-102-104	VR-SEMI TAPE-H	DVN-DJA A03B23(2K)	1		
Q801, 810 ⚠	12149-401-900	TRANSISTOR	KSD882-O	2		
D101, 102	12169-501-005	DIODE	KV 1236	1		
L301, 351	12429-010-210	COIL-CHOKE, RND	5R 6MH-K Q80 FOR252	2		
LF301, 351	12429-306-113	COIL-BIAS TRAP	FB895-85A	2		
J501	13333-510-110	JACK-EARPHONE	3.5PI (SHQ9508-01-020)	1		
J601	13339-201-501	JACK-HEADPHONE	SHQ9085-01-010	1		
J401	13339-403-020	JACK-AUX	8.3 PI PHOND TYPE	1		
CW901, 904	13349-341-050	CONNECTOR-HOUSING	5512-05A 5PIN	2		
CW903, 906	13349-341-060	CONNECTOR-HOUSING	5512-06A 6P	2		
CW902, 905, 702	13349-341-090	CONNECTOR-HOUSING	5512-09A 9P	3		
CR201	14529-601-040	CERAMIC-FILTER	CDA 10.7 MG18	1		
R807, 822 ⚠	11059-072-400	R-FUSIBLE	RF 1/2T 10-J	2		
T102, 103 T101, 104,	11829-512-030	C-TRIMMER	TZ03R 20PF	3		
Q601, 811, 701, 751	12149-101-560	TRANSISTOR	KSA708-Y, TAPE	4		
Q1, 310, 360, 501, 502, 103, 104, 602	12149-301-820	TRANSISTOR	KSC1222-L, TAPE	8		
Q301, 351	12149-301-840	TRANSISTOR	KSC900-L, TAPE	2		
Q105, 106, 107, 108	12149-301-890	TRANSISTOR	KSC945-L, TAPE	4		
Q803, 804, 806, 808 807, 505	12149-301-900	TRANSISTOR	KSC945-Y, TAPE	6		
Q302, 352, 303, 353 702, 752	12149-301-930	TRANSISTOR	KSC1008-Y, TAPE	6		
Q504, 809	12149-401-150	TRANSISTOR	KSD 471-Y, TAPE	2		
Q805, 204, 361, 362, 401 363, 365, 206, 402, 215	12159-301-330	TR-DIGITAL	KSR2003, TAPE	10		
Q601, 651, 304, 354, 306, 356, 207, 307, 503	12159-301-790	TR-DIGITAL	KSR 1009	9		
Q203, 205, 305, 355, 309 359, 366, 308, 358, 364 903, 216, 781, 812	12159-301-800	TR-DIGITAL	KSR 1007	14		

SYMBOL NO.	CODE NO.	DESCRIPTION	SPECIFICATION	Q'TY	NEW	REMARK
Q101, 102	12159-301-810	TR DIGITAL	KSR 2007	2		
D808, 809 ⚠	12169-201-090	DIODE-RECTIFIER	1N 4002, TAPE	2		
D101, 102, 103, 781	12169-301-290	DIODE-SW	1SS53/1N4148, CT: 6PF	47		
303, 501, 502, 302, 305						
503, 814, 817, 601, 813						
810, 820, 401, 402, 403						
405, 304, 908, 923, 943						
104, 120, 301, 306, 815						
771, 219, 407						
D805, 806, 926, 928, 901						
902, 903, 930, 904, 905						
919, 920, 924, 925						
ZD808, 819, 818 ⚠	12169-403-340	DIODE-ZENER	UZP-9.1B/RD9.1F 1W	3		
T201	12619-030-005	COIL-CAN	AC 450KHz YEL	1		
W801	13349-103-103	CONNECTOR-WAFER	STICK 5267-10A 10P	1		
W601, 01	13349-512-561	CONNECTOR-WAFER	STICK 5267-02A 2P-TYPE	2		
W301, CON401	13349-512-565	CONNECTOR-WAFER	STICK 5267-06A 6P-TYPE	2		
W701	13349-512-566	CONNECTOR-WAFER	STICK 5267-09A 9P-TYPE	1		
W302, 602	13349-527-502	CONNECTOR-WAFER	STICK 5267-03A 3P	2		
CF201	14529-301-750	FILTER CERAMIC	SFE 10.7 MS3G-A	1		
CF203	14529-304-610	FILTER CERAMIC	AHCM2-450BL	1		
CR202	14539-504-050	CERAMIC RESONATOR	CSB 456F18	1		
L102	12619-047-203	COIL-CAN	AD 110UH 796KHz RED	1		
D801, 802, 803, 804 ⚠	12169-201-130	DIODE-RECT/IN5173	2.0A 300V	4		
S801	13529-920-220	SWITCH-PUSH	R2320615 2C-2P	1		
REM-EYE	12199-101-050	REMOCON EYE	GP1U501 x 1 701R	1		
LD101, 902, 903, 904	12309-115-330	LED	KLR-124	4		
LCD DTS	12339-101-100	LCD-DTS	LCD-8175JPR	1	★	
S902, 903, 904	13529-203-930	SW-PUSH	SPEA122S C011	3		
X901	14539-003-010	CRYSTAL-UNIT	HC18-U4.5MHz	1		
W901, 904	13349-148-050	CONNECTOR-WAFER	5513-05APB 5PIN	2		
W903, 906	13349-148-060	CONNECTOR-WAFER	5513-06APB 6P	2		
W902, 905, CON702	13349-148-090	CONNECTOR-WAFER	5513-09APB 9P	3		
S101, 102, 103, 104, 105	13559-901-100	TACT SWITCH	SKHVBE029A	21		
106, 107, 918, 901, 924						
906, 907, 923, 909, 910						
911, 915, 917, 920, 921						
922						
VR705	11219-141-070	VR ROUND MOTOR	RK16Y 12MA 2L1 53B	1	★	
VR701	11239-115-170	VR-SLIDE	RS20H 121J 304 14B	1	★	
VR702, 703, 704	11239-115-180	VR-SLIDE	RS20H 123J A01 14B	3	★	

SYMBOL NO.	CODE NO.	DESCRIPTION	SPECIFICATION	Q'TY	NEW	REMARK
MAIN SPK	14209-118-231	SPK-GENERAL	Y100FB-04 4Ω RMS 5W	2	★	
TURBO-SPK	14209-119-232	SPK-GENERAL	Y100FD-03 8Ω RMS 15W	1	★	
CON01	13039-406-149	MULTI-WIRE	2468 #26-6 140MM	1	★	
W603	13078-465-120	CONNECTOR-WIRE/B, S	5264-05/5395-05 1007 #24 200	1	★	
CON701	13078-499-220	CONNECTOR-WIRE/B, S	5264-09/5395-09, 2547 #28 200	1	★	
CON1101	13077-540-220	CONNECTOR-WIRE/B, S	5231-10/BS 20-10, 1061 #28 200	1	★	
CON930	13079-982-130	CON-WIRE, SHIELD/B, S	5264-02/5395-02 ; 1533 #28	1	★	
BATT, CLOCK	13029-395-130	CONNECTOR-WIRE	5264-04, 1007 #24 300	1	★	
SPK-CON-WIRE	13052-901-150	CONNECTOR-WIRE	5264-03/1007 #24 900/400	1	★	
TURBO-CON-WIRE	13029-426-130	CONNECTOR-WIRE	5264-02/1007 #24 300	1	★	
MOTOR WIRE	13029-404-130	CONNECTOR-WIRE	5264-10, 1007 #28 300	1	★	
PLAY HEAD WIRE	13029-430-140	CONNECTOR-WIRE	5264-03 2970 #33 400	1		
REC HEAD WIRE	13029-460-140	CONNECTOR-WIRE	5264-06 2970 #33 400	1		
L501	12619-584-140	TRANS-TEN, CAN	11MH H-BASE F 85K BLK	1		
CON603	13349-103-053	CONNECTOR-WAFER	STICK 5267-05A 5P	1		
F801 ⚠	14709-241-280	FUSE	T 250V 3.15A 20 EUR	1		
S108, 905, 908, 912 913, 914, 916, 919	13529-301-140	SW-TACT	JTP1230AH 4P-5MM 110G	8		
AC SOCKET ⚠	13354-501-320	SOCKET-2P, SW(CP)	HSC 1466-01-0101 (PIN)	1		OPTION
AC SOCKET ⚠	13354-501-310	SOCKET-2P, SW(EP)	HSC-1463-01-0101 (PIN TYPE)	1		OPTION
P/T ⚠	12869-221-900	TRANS-POWER	EI 57 x 35 120/220V 60/50Hz UL/CSA PIN	1	★	OPTION
P/T ⚠	12869-221-910	TRANS-POWER	EI 57 x 35 110/220V 60/50Hz PIN	1	★	OPTION
P/T ⚠	12869-221-920	TRANS-POWER	EI 57 x 35 115/230V 60/50Hz PIN	1	★	OPTION
P/T ⚠	12869-221-930	TRANS-POWER	EI 57 x 35 220/240V 60/50Hz B,S/VDE PIN	1	★	OPTION
L104	12619-047-202	COIL-CAN	AD 510UH 220KHz BRN	1		LW BAND
F803 ⚠	14709-202-120	FUSE	51T 250V 400MA (KS)	1	★	OPTION

* ⚠ indicates parts for circuit safe guarding purposes. Therefore, when replacing, be sure to use specified parts only.

2) Mechanical Parts

NO.	CODE NO.	DESCRIPTION	SPECIFICATION	Q'TY	NEW PARTS	REMARK
1	16000-532-110	CABINET-FRONT	HIPS, BLK	1	★	
2	16000-532-010	CABINET-BACK	HIPS, BLK	1	★	
3	17642-541-010	LID-CASSETTE, L	ABS BLK	1	★	
4	17642-541-110	LID-CASSETTE, R	ABS BLK	1	★	
5	17644-519-310	WINDOW-CASSETTE, L	AS	1	★	
6	17644-519-410	WINDOW-CASSETTE, R	AS	1	★	
7	18153-509-410	STICKER-DOOR, L	TOYO CF2700	1	★	
8	18153-509-510	STICKER-DOOR, R	TOYO CF2700	1	★	
9	17644-519-510	WINDOW-LCD	AS	1	★	
10	18153-509-610	STICKER-LCD	TOYO CF2700	1	★	
11	18154-596-310	STICKER-FOOT	AL GOLD	2	★	
12	17713-510-610	GRILL-SPEAKER, L	SPC-1 0.6T	1	★	
13	17713-510-710	GRILL-SPEAKER, R	SPC-1 0.6T	1	★	
14	17458-130-121	SCREW-TAP, BH	B-3 x 12 FE FZY	12		
15	14209-118-231	SPEAKER-GENERAL	Y100FB-04 4Ω RMS 5W	2	★	
16	17148-526-081	SCREW-TAP, RH	2S-2.6 x 8 FZY	14		TACT-KNOB
17	17623-582-510	KNOB-TACT, CD	ABS, BLK	1	★	
18	17624-628-210	KNOB-TACT, POWER	ABS, BLK	1	★	
19	17624-628-510	KNOB-FUNCTION	ABS, BLK	1	★	
20	17624-628-110	KNOB-CLOCK	ABS, BLK	1	★	
21	17623-582-610	KNOB-TACT, BAND	ABS, BLK	1	★	
22	17623-582-710	KNOB-DTS1	ABS, BLK	1	★	
23	17623-582-720	KNOB-DTS4	ABS, BLK	1	★	
24	16674-567-310	SPRING-DOOR	SWP PI1.0	2	★	
25	17623-583-010	GUIDE CD EJECT	ABS, BLK	1	★	
26	17624-628-710	KNOB-CD EJECT	ABS, BLK	1	★	
27	16674-573-410	SPRING-PUSH	SUS #27 ø 0.35	1		
28	17624-628-610	KNOB-PUSH	ABS, BLK	3	★	
29	16623-616-710	BRKT-LCD	SPTE 0.3T	1	★	
30	16834-512-120	HOLDER-POWER LED	ABS, BLK	1	★	
31	16834-512-220	HOLDER-FUNCTION LED	ABS, BLK	1	★	
32	14929-104-950	TAPE-DECK	ADR1523FW	1		
33	17623-582-920	KNOB-DECK, PAUSE	ABS, BLK	2	★	
34	17623-582-930	KNOB-DECK, STOP	ABS, BLK	2	★	
35	17623-582-940	KNOB-DECK, FF	ABS, BLK	2	★	
36	17623-582-950	KNOB-DECK, REW	ABS, BLK	2	★	
37	17623-582-810	KNOB-DECK, L	ABS, BLK	1	★	
38	17623-582-910	KNOB-DECK, PLAY S	ABS, BLK	1	★	
39	17623-582-960	KNOB-DECK, REC	ABS, BLK	1	★	
40	17458-230-141	SCREW-TAP TITE BH	B-3 x 14 FZY	10		P/TRANS
41	17458-130-251	SCREW-TAP TITE BH	B-3 x 25 FZY	16		MOUNTING
42	16021-505-210	TURBO-CHASSIS, DECK	ABS, BLK	1	★	

NO.	CODE NO.	DESCRIPTION	SPECIFICATION	Q'TY	NEW PARTS	REMARK
43	16021-505-310	TURBO-CHASSIS, SPEAKER	ABS, BLK	1	★	
44	14209-119-232	TURBO-SPEAKER	Y100FD-03 8Ω RMS15W	1	★	
45	16034-505-110	TURBO-COVER	ABS BLK	1	★	
46	17458-230-083	SCREW-TAP TITE BH	B-3 x 8 FZB	7		PCB
47	17458-230-101	SCREW-TAP TITE BH	2S-3 x 10 FZY	14		PCB
48	17663-507-710	HANDLE-BEAM	ABS, BLK	2	★	
49	17813-501-010	HANDLE-BAR	PVC, BLK	1	★	
50	17118-530-123	SCREW-TAP FH	2S-3 x 12 FZB	2		HANDLE
51	16603-511-310	HOLDER-CD LCD	ABS, BLK	1	★	
52	16021-505-700	CHASSIS-MECA	ABS, BLK	1		
53	16174-503-410	RUBBER-CD	SI RUBBER	4		
54	15104-531-710	SHAFT-CD	FE FZY 2.6 x 10.5	4		
55	16133-503-620	CAP P/U	SUS	1		
56	16604-539-410	HOLDER-CD EJECT	ACETAL, BLK	1	★	
57	13564-601-060	LEAF SWITCH	MSW-0080CNBKP	1		
58	15214-506-010	DAMPER-GEAR ASS'Y	G332	3		
59	16021-540-910	CD-CHASSIS	ABS, BLK	1	★	
60	16674-574-010	SPRING-CD DOOR	SWP ø 1.0	1	★	
61	17642-540-910	CD-DOOR	ABS, BLK	1	★	
62	17644-519-610	WINDOW-CD DOOR	AS	1	★	
63	18153-509-310	STICKER-CD DOOR	TOYO CF2700	1	★	
64	16034-504-210	HOLDER-CHUCK	ABS, BLK	1		
65	16623-504-420	BRKT-CHUCK	SBHG-1 0.5T	1		
66	14014-500-600	MAGNET-CHUCK	SR FERRITE	1		
67	16603-511-810	HOLDER CHUCK PLATE	ABS, BLK	1		
68	17098-120-032	SCREW-BH	+M2 x 3 FE FZW	1		CHUCK ASS'Y
69	17154-100-630	SCREW-TAP RH SPEC	2S-3 x 8 FZY	2		HOLDER EJ
70	17643-525-710	LID-BATTERY	HIPS (HR-3370)	1	★	
71	16604-539-520	HOLDER-EQ, S	ABS, BLK	2	★	
72	16604-539-510	HOLDER-EQ, L	ABS, BLK	2	★	
73	16022-530-910	CHASSIS-EQ	ABS, BLK	1	★	
74	17624-570-710	KNOB-PUSH	ABS, BLK	1		
75	17158-220-103	SCREW-TAP, BH	2-2 x 10 FZB	1		LEAF S/W
76	17624-628-410	KNOB-VOLUME	ABS, BLK	1	★	
77	17624-628-310	KNOB-EQ	ABS, BLK	4	★	
78	14509-316-050	ROD-ANT	728MM 4S	1		
79	17048-130-101	SCREW-RH	+M3 x 10 FZY	1		ROD ANT
80	16674-572-110	SPRING-BATTERY (–)	HSW 0.8	1		
81	16674-572-010	SPRING-BATTERY (+)	HSW 0.8	1		
82	16674-572-210	SPRING-BATTERY (+, –)	HSW 0.8	1		
83	16674-531-820	SPRING-BATTERY (+, –)	SWP 1.0	1		
85	16674-560-220	SPRING-BATTERY, K	SWP 1.0	1		
86	17154-100-670	SCREW-TAP RH SPEC	2S-3 x 12 FE FZY	10		
87	17148-526-101	SCREW- TAP RH	2S-2.6 x 10 FE FZY	3		

3) CD PACK Parts

SYMBOL NO.	CODE NO.	DESCRIPTION	SPECIFICATION	Q'TY	NEW PARTS	REMARK
IC0316	12109-303-150	IC-DAC	KDA0316LD (BULK)	1		
IC5990	12119-203-770	IC-DS PROCESSOR	KS5990/KS59910	1	★	
IC8309	12119-203-780	IC-SS PROCESSOR	KA8309 (SAMSUNG SSP)	1	★	
IC8309 (OPTION)	12109-323-740	IC-SS PROCESSOR	CXA1082AQ (SONY SSP)	1		
IC9201	12119-203-790	IC-RF AMP	KA9201	1	★	
IC7777, 7778	12119-202-920	IC-BTL DRIVER	KA9257	2	★	
IC7805	12119-601-170	IC-VOLT REGULATOR	MC78M05	1		
IC3403	12119-401-210	IC-OP AMP	NJM3403AD	1		
IC7530	12109-303-690	IC-MICOM	KS56C820-06	1	★	
Q1701	12149-202-050	TRANSISTOR	KSB564A-Y	1		
Q1903, 1904, 1906, 1907 1909	12149-301-890	TRANSISTOR	KSC945-L	5		
Q1501, 1502, 1901, 2000	12159-301-780	TR-DIGITAL	KSR1003	4		
Q1791, 1792	12159-301-800	TR-DIGITAL	KSR1007	2		
Q1902	12159-301-330	TR-DIGITAL	KSR2003	1		
Q1908	12159-301-810	TR-DIGITAL	KSR2007	1		
D1901, 1501, 1502, 1503 1504, 901, 902, 903 904, 804, 805, 1902	12169-301-290	DIODE-SW	1SS531/IN4148, CT: 6PF	12		
L1701, 1601, 1501, 1801	12429-411-109	COIL-CHOKE	BAL03ST1ROM	4		
L1901	12429-411-101	COIL-CHOKE	LAL02TB 101K, 100UH	1		
RF229 ⚠	11058-377-229	R-FUSIBLE	1/2T 2.2J	1		
XF1702	14534-504-040	CERAMIC-RESONATOR	CSA 4.00MG	1		
XF1701	14539-401-050	X-TAL	HC18U 16.9344MHz	1		
VR1704, 1705, 1701	11249-002-250	VR-SEMI	VZ067TH T20KB, HDK V-TYPE	3		
VR1703	11249-002-260	VR-SEMI FIXED	VZ067TH T20KB, HDK V-TYPE	1		
VR1702	11249-002-120	VR-SEMI FIXED	VZ068TLT 1KB ; HDK H-TYPE	1		
LCD	12339-101-900	LCD-CD	8174R	1		

■ ABBREVIATION LIST

AC : Alternating Current
AM : Amplitude Modulation
AMP : AMPlifier
ANT : ANTenna
ASSY : ASSemblY

BLK : BLacK
BLU : BLUe
BPF : Band Pass Filter

CD : Compact Disc
CF : Ceramic Filter
CH : CHannel
CIRC : Cross Interleave Reed Solomon Code
cm : centimeter
COM : COMmon

D : Depth
D/A : Digital/Analog
dB : deciBel
DC : Direct Current
DTS : Digital Tuning System

EA : EAch
EQ : EQualizer

F/F : Flip Flop
FM : Frequency Modulation

GND : GrouND
GRN : GReeN
GRY : GRaY

H : Height, High

IC : Integrated Circuit
IF : Intermediate Frequency
IFT : Intermediate Frequency Transformer
I/O : Input/Output

Kg : Kilogram

L : Left, Low
LCD : Liquid Crystal Display

mm : millimeter
mV : milli Volt
mW : milli Watt

NF : Negative Feedback
nm : nanometer

ORG : ORanGe
OSC : OSCillator

PCB : Printed Circuit Board
PLL : Phase Locked Loop
P/T : Power Transformer

R : Right
RAM : Random Access Memory
REG : REGulator
RF : Radio Frequency
ROM : Read Only Memory
R/P : Record/Play

sec : second
SPK : SPeaKer
SSG : Standard Signal Generator
SW : SWitch

TP : Test Point
TRANS : TRANSformer

V : Volt
VIO : VIOlet
VCO : Voltage Controlled Oscillator
VR : Variable Resistor
Vref : REFerence Voltage
V/SEL : Voltage SELector
VTVM : Vacuum Tube Volt Meter

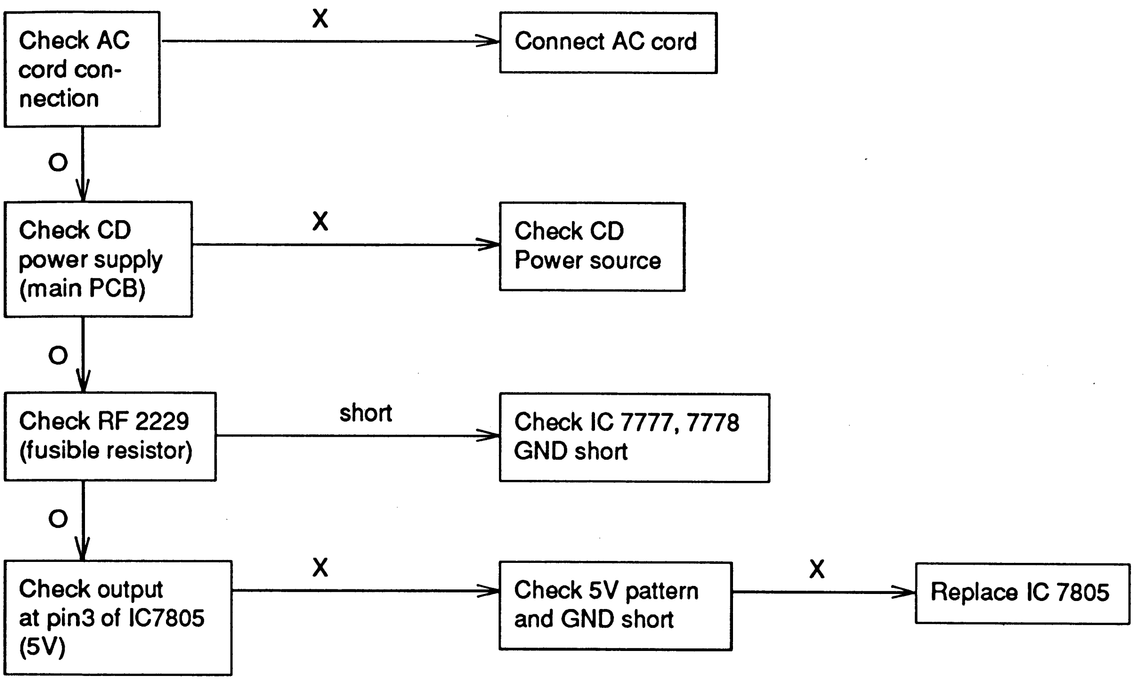
W : Watt, Weight
WHT : WHiTe

X : crystal

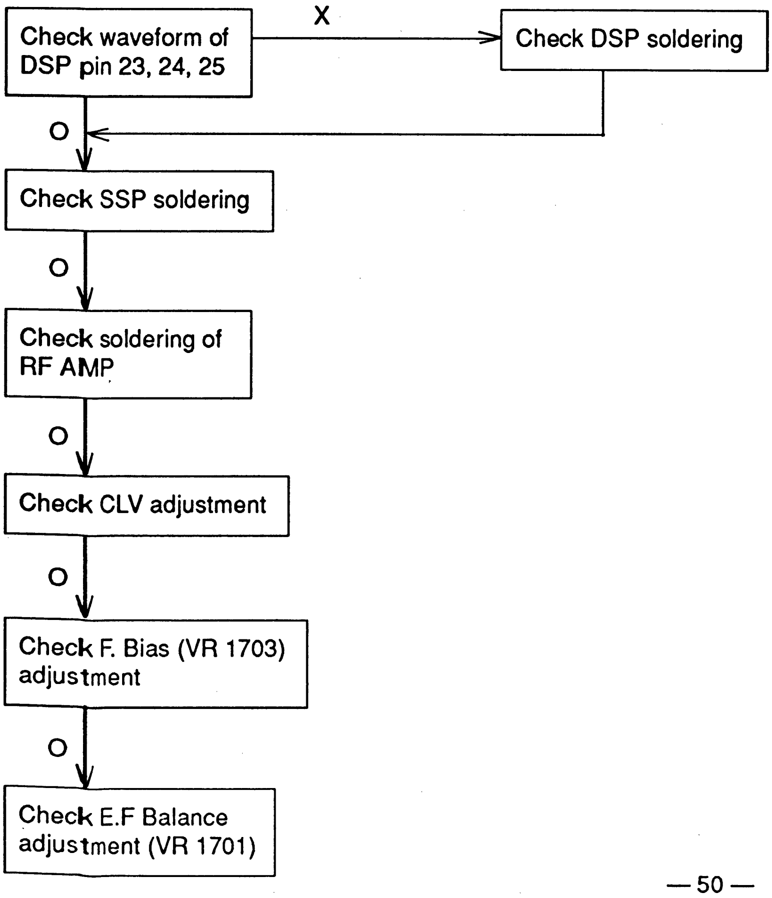
■ TROUBLE SHOOTING (CD)

* Refer to Schematic Diagram & Waveform Diagram.

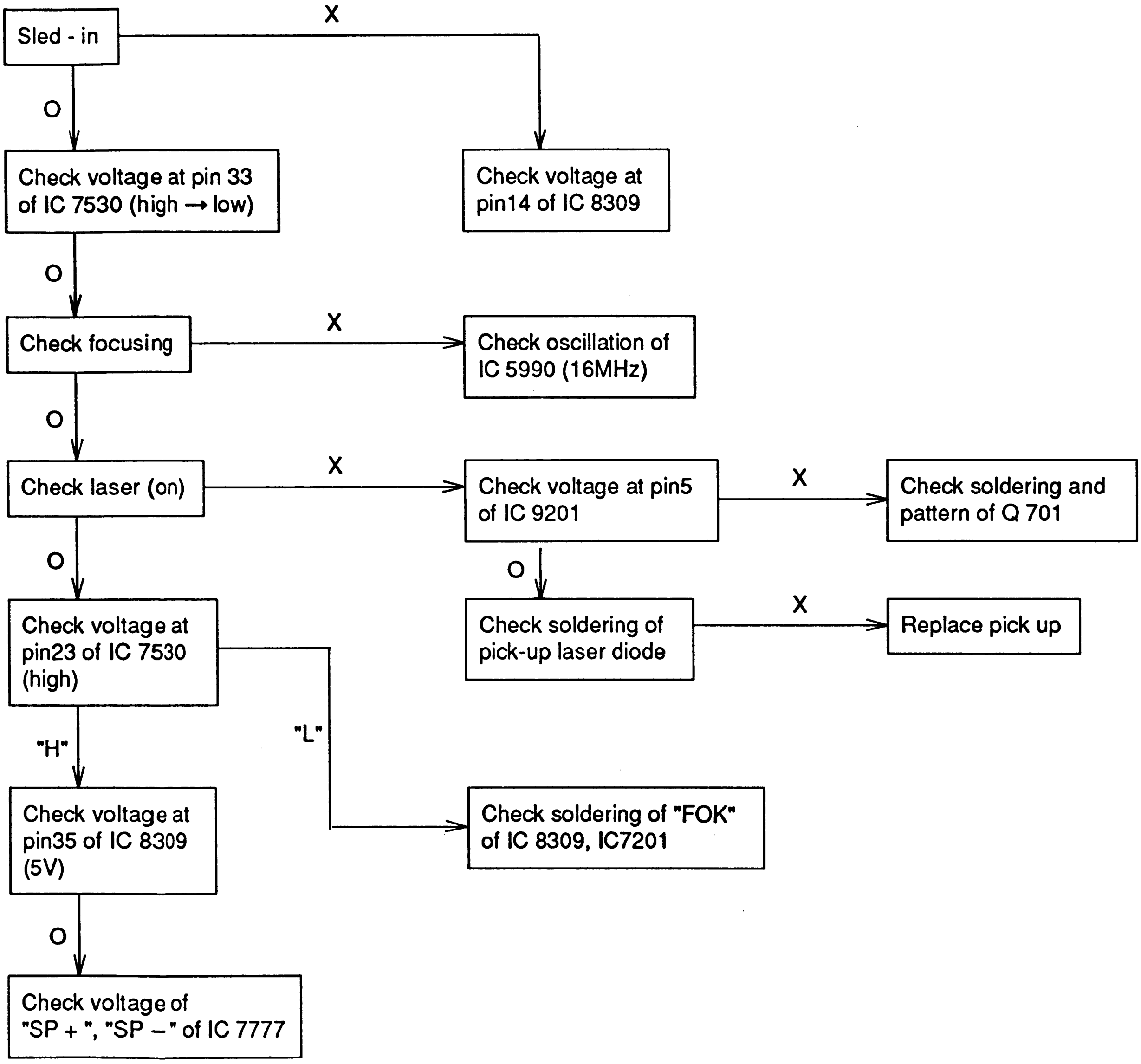
1. POWER NOT SENSIBLE


Check AC cord connection
X
Connect AC cord
O
Check CD power supply (main PCB)
X
Check CD Power source
O
Check RF 2229 (fusible resistor)
short
Check IC 7777, 7778 GND short
O
Check output at pin3 of IC7805 (5V)
X
Check 5V pattern and GND short
X
Replace IC 7805

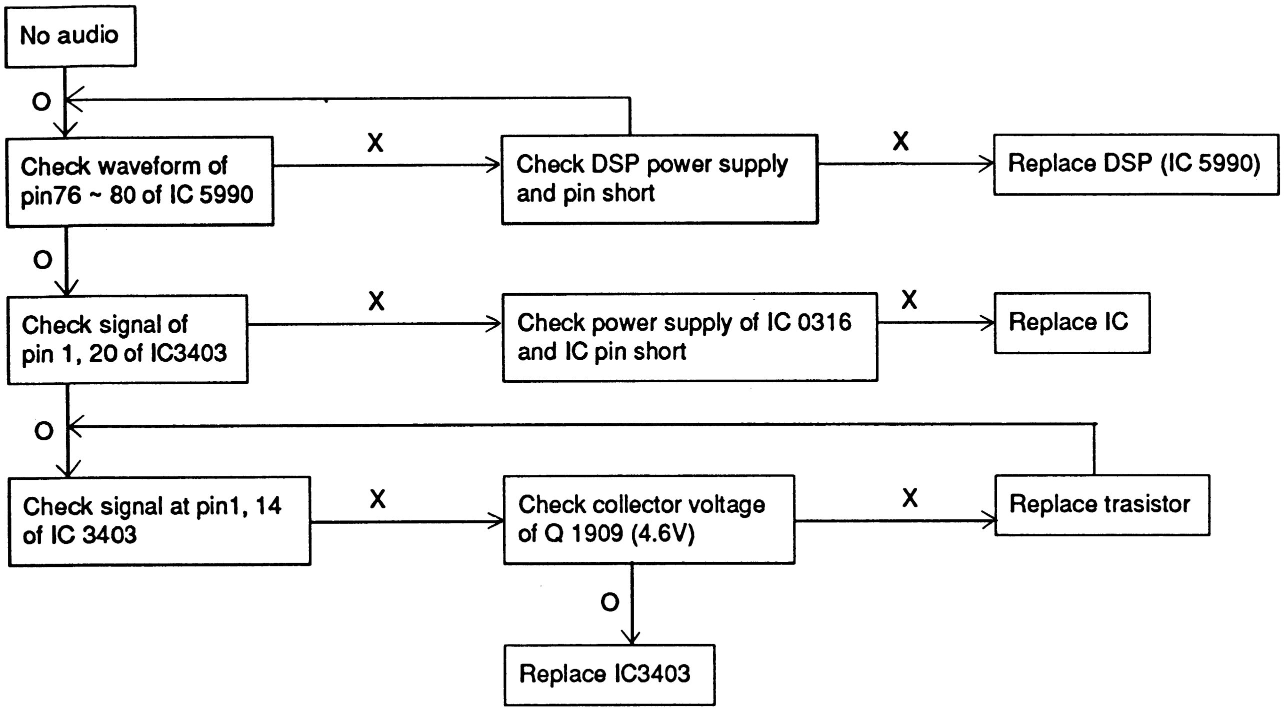
2. LEAD-IN NOT WORKING


Check waveform of DSP pin 23, 24, 25
X
Check DSP soldering
O
Check SSP soldering
O
Check soldering of RF AMP
O
Check CLV adjustment
O
Check F. Bias (VR 1703) adjustment
O
Check E.F Balance adjustment (VR 1701)

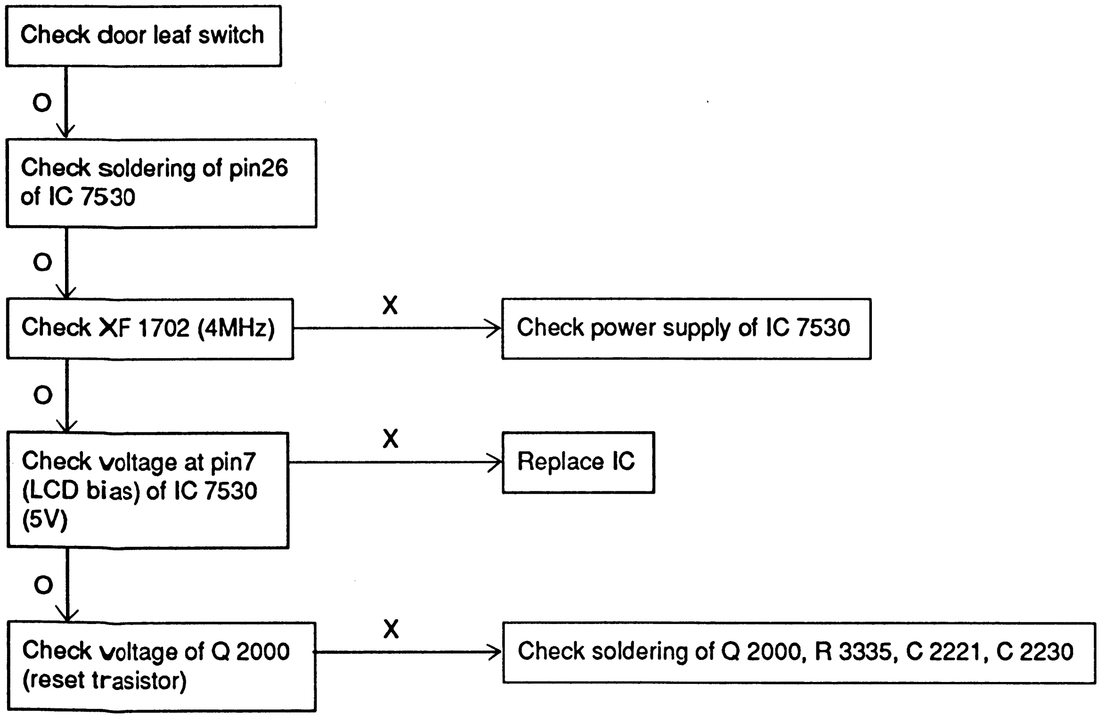
3. DISC NOT ROTATING


Sled - in
X
O
Check voltage at pin 33 of IC 7530 (high → low)
Check voltage at pin14 of IC 8309
O
Check focusing
X
Check oscillation of IC 5990 (16MHz)
O
Check laser (on)
X
Check voltage at pin5 of IC 9201
X
Check soldering and pattern of Q 701
O
O
Check voltage at pin23 of IC 7530 (high)
Check soldering of pick-up laser diode
X
Replace pick up
"H"
"L"
Check voltage at pin35 of IC 8309 (5V)
Check soldering of "FOK" of IC 8309, IC7201
O
Check voltage of "SP + ", "SP – " of IC 7777

4. NO AUDIO


No audio
O
Check waveform of pin76 ~ 80 of IC 5990
X
Check DSP power supply and pin short
X
Replace DSP (IC 5990)
O
Check signal of pin 1, 20 of IC3403
X
Check power supply of IC 0316 and IC pin short
X
Replace IC
O
Check signal at pin1, 14 of IC 3403
X
Check collector voltage of Q 1909 (4.6V)
X
Replace trasistor
O
Replace IC3403

5. DISPLAY NOT WORKING


Check door leaf switch
O
Check soldering of pin26 of IC 7530
O
Check XF 1702 (4MHz)
X
Check power supply of IC 7530
O
Check voltage at pin7 (LCD bias) of IC 7530 (5V)
X
Replace IC
O
Check voltage of Q 2000 (reset trasistor)
X
Check soldering of Q 2000, R 3335, C 2221, C 2230

■ BASIC CIRCUIT OPERATION

1. AMPLIFIER

1) MAIN AMPLIFIER

The main amplifier circuit which consists of IC 601 (TA 8207) that separates signals to left and right is used to amplify the signal source from the tone control circuit so the user can hear.
The signals devided into 2 from the IC 601 are mixed at R604 and R605 in the middle-low-sound-control circuit. High sound while passing through Q-602, is removed and input to IC 602 (TA 8207) and output to middle-low-sound output-speaker. (SBS speaker).
Amplification level of IC601 is determined by R 602 and R 652. In case of this unit, it's amplification level is 45 dB.
Amplification level of IC 602 is controlled by R612 and R652.

2) TONE CONTROL CIRCUIT

Tone circuit consists of 4 equalizer (100Hz, 400Hz, 2KHz, 10KHz) control circuits so users can choose a desired tone at their convenience. Up to 10 dB of gain is to be increased by raising volume. And up to 10 dB is to be decreased by lowering volume.

2. DECK CONTROL SECTION

1) PLAYBACK EQUALIZATION AMPLIFICATION CIRCUIT

The playback EQ. amp circuit is used to flatten the frequency which became high after emphasized in the high range when recorded to improve signal to noise ratio by cutting the signal frequency as well as to amplify signal frequency from a Head which detects electrical signal from magnetized signal recorded on a magnetic tape.
The playback EQ. amp. circuit is composed of IC to meet NAB specification requirement of a tape.

2) RECORD EQUALIZATION CIRCUIT

When recording, recording frequency level is decreased as frequency moves from the middle to high range. In order to obtain flat frequency response, this level should be compensated. The record equalization circuit is used to compensate and amplify signals necessary enough to record.

3) TAPE BIAS OSCILLATOR

The tape bias oscillator consists of high frequency oscillator (10.5KHz) to obtain bias voltage necessary to record signals.
In order to record on a magnetic tape, the signal voltage should be modulated to high frequency of bias voltage and the amount of the high frequency of bias current are different in accordance with the type of magnet (in accordance with tape type) on a tape, and distortion when recording, can be improved when bias frequency is at straight line of B-H curved line.

3. POWER SUPPLY SECTION

Power supply section provides constant power supply voltage corresponding to the household appliance and ensure safe operation. It consists of regulating voltage ICs, zenor diode, switching transistors, electrolytic condenser, ALC fuse, power conversion switch, AC cord and Tuner-LCD operate circuit that enlights tuner LCD without being affected by power switch.

4. TUNER SECTION

1) FM

The voltage supplied in the PLL control IC is supplied to the FM oscillation circuit and determines oscillation frequency. The frequency determined by the control voltage is supplied to the antenna coil, RF coil etc in the FM front end pack to receive broadcasting. This frequency is deliverded to RF circuit through FET after being amplified.
This frequency is realigned in RF circuit to prevent frequency from changing and to remove noise before being delivered to the mixer. The aligned frequency and oscillating frequency are combined in the mixer and changed to IF (Intermediate Frequency). This frequency is amplified and realigned to an accurate IF through IFT. What has been described so far is how the circuits in the front end pack operate.
The realigned frequency passes through Q1 which amplifies the intermidiate frequency and an accurate IF is input ot pin24 of IC201 after signals are filtered by CF 201.
IC201 consists of circuits related to the amplification and detection of IF frequency.
Signal which was input to pin1 of IC201 passes through the amplification and detection circuit and audio signal is generated from pin 19 and input to MPX circuit.
MPX IC demodulates signals and generates left and right signals thorugh each output port.

2) AM (MW, LW)

Just like FM, Broadcasting is receivd by the voltage at the oscillation and antenna circuit set by PLL control circuit. Frequency tuned to antenna is input to pin21 of IC201 and the oscillation frequency is input to pin3 of IC 201.
Signals which was input to pin 1 of IC 201 are delivered through RF AMP to the mixer and are combined with frequency of local OSC circuit which will be changed to intermediate frequency by the difference of the two frequency.
And signal is input to pin 18 from pin 19 of IC 202 after being passed through IF amplification and detection circuit.
Then AM signal is generated through MPX cirucit.

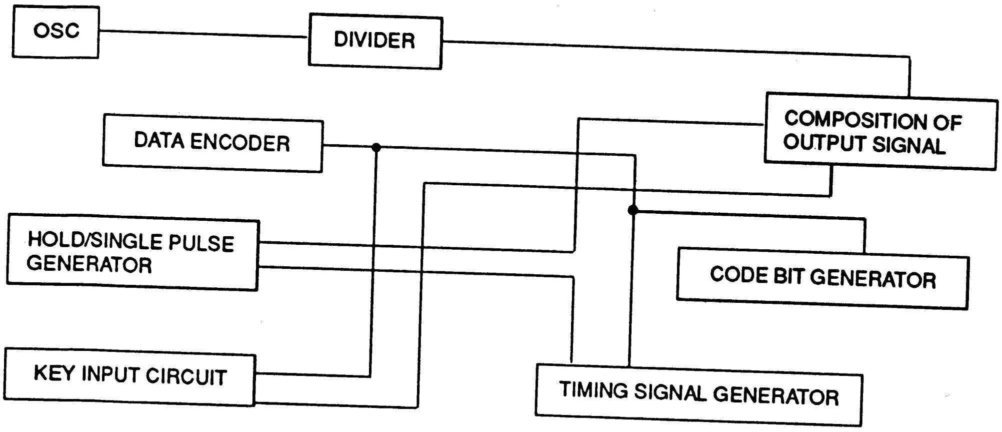
5. MICOM

1) SYNTHESIZER

IC901 is a PLL-synthesizer IC.
FM an AM voltage which was oscillated from local oscillator are controlled by PLL circuit.
In case of FM, if FM is selected among IC901 switches, IC901 is processed to be in FM mode internally and PLL circuit displays FM frequency set in memory in the form of digit number on LCD and supplies power to FM section through Q101 by changing voltage at pin8 of IC 901 from high to low.
If power is supplied to FM section, FM oscillation signals are input to pin 74 of the IC901 and devided in inside of the IC901 and lowered to frequency level which can be controlled. An this signal is passing through the frequency Display in the input section which displays the frequency currently being received in the form of digit number on LCD.
Same procedure is applied to AM.

2) TRANSMITTING SECTION OF REMOTE CONTROL

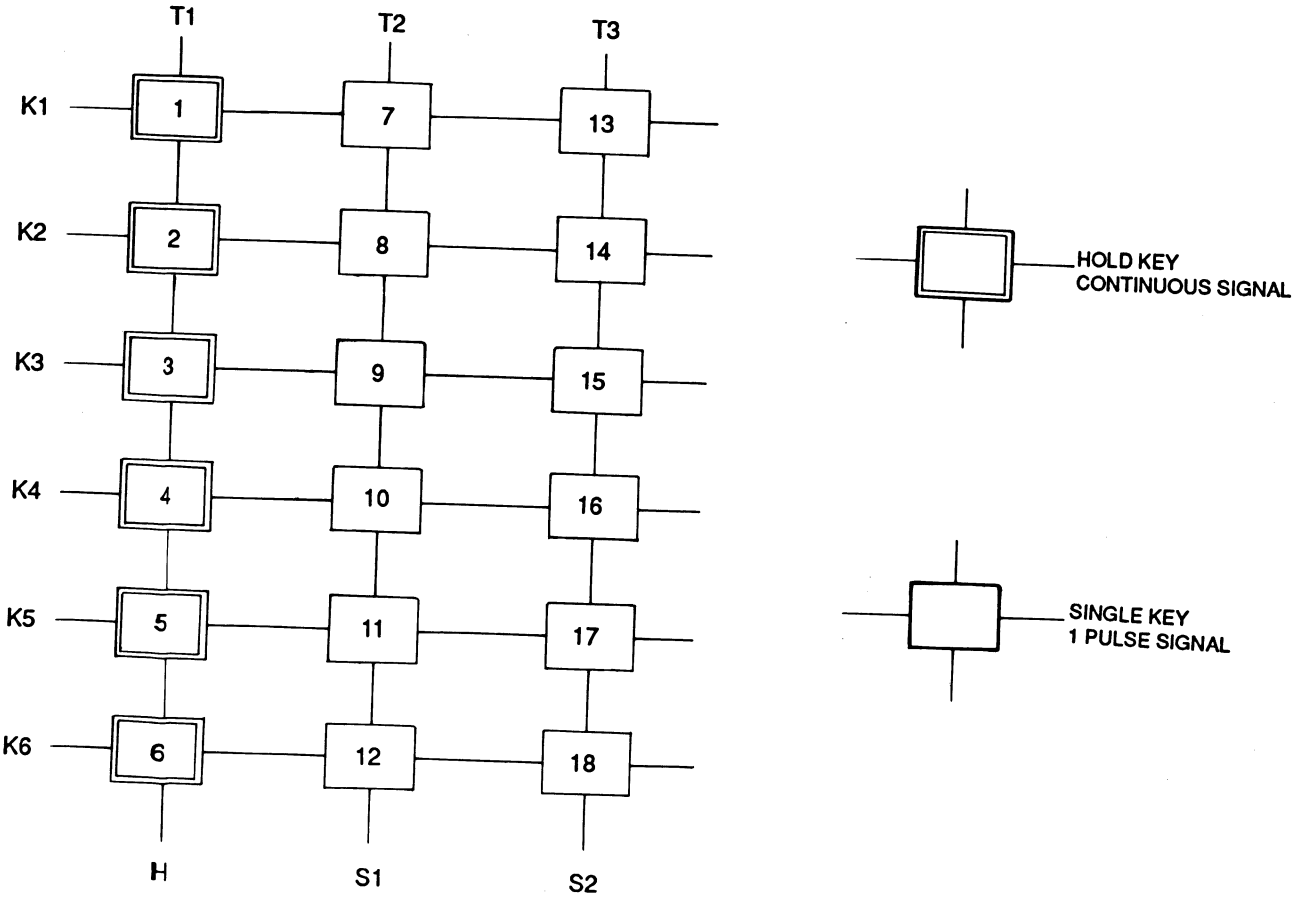
Remote controller transmits signals by modulating 38KHz pulse to digital code.


OSC
DIVIDER
DATA ENCODER
COMPOSITION OF OUTPUT SIGNAL
HOLD/SINGLE PULSE GENERATOR
CODE BIT GENERATOR
KEY INPUT CIRCUIT
TIMING SIGNAL GENERATOR

① Oscillation circuit
The oscillation circuit has a self-bias-amplifier built in and LC or piezoelectric resonator is connected to form an oscillation circuit.
If frequency oscillates to 450KHz, transmitting frequency will be 38KHz.

② Divider
This divides oscillation frequency in the oscillation circuit and provides the frequency to encoder.

③ Timing signal generator and key input circuit
6 x 3 command is input by K1 ~ K6 and timing pulse signal T1 ~ T3.
Key matrix and data code look like this.


T1
T2
T3
K1
K2
K3
K4
K5
K6
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
H
S1
S2
HOLD KEY
CONTINUOUS SIGNAL
SINGLE KEY
1 PULSE SIGNAL

KEY NO	DATA									OUTPUT FORM
	H	S1	S2	D1	D2	D3	D4	D5	D6	
1	1	0	0	1	0	0	0	0	0	H
2	1	0	0	0	1	0	0	0	0	H
3	1	0	0	0	0	1	0	0	0	H
4	1	0	0	0	0	0	1	0	0	H
5	1	0	0	0	0	0	0	1	0	H
6	1	0	0	0	0	0	0	0	1	H
7	0	1	0	1	0	0	0	0	0	H
8	0	1	0	0	1	0	0	0	0	H
9	0	1	0	0	0	1	0	0	0	H
10	0	1	0	0	0	0	0	0	0	S
11	0	1	0	0	0	0	0	0	0	S
12	0	1	0	0	0	0	0	0	0	S
13	0	0	1	1	0	0	0	0	0	S
14	0	0	1	0	1	0	0	0	0	S
15	0	0	1	0	0	1	0	0	0	S
16	0	0	1	0	0	0	1	0	0	S
17	0	0	1	0	0	0	0	1	0	S
18	0	0	1	0	0	0	0	0	1	S

* H : HOLD SIGNAL
S : SINGLE SIGNAL

④ Transmitting command
Transmitting command is composed of 1 word 12bits.
C1 - C3 is code bit and H, S1, S2 are hold signal and single signal code. D1 - D6 is a key input data code with 6 bits.

C1	C2	C3	H	S1	S2	D1	D2	D3	D4	D5	D6
CODE BIT			HOLD/SINGLE DATA			KEY INPUT DATA					

⑤ CODE BIT (C1, C2, C3)
Code bit is sent to the one port by dynamic pins (T1, T2, T3) connected to Diode.
By connecting diode to code pins, data of C1 ~ C3 code bit becomes 1 by T1 ~ T3. If they are not connected, it becomes 0.

3) REMOTE CONTROL RECEIVING SECTION

Remote control receiving section is divided into 2 blocks.
First one is a data detection circuit which detects data being transmitted after receiving infrared rays from transmitting device, and a control system which performs checking and comparing the receiving serial data with Custom code and generating parallel data and sending control signal to decoder.
Hybrid IC is adapted in this unit for detecting infrared rays and up to 18 functions can be controlled with the control system.
Control system for receiving remote control signal is all internal to IC 901 together.